

# SunCarrier fixed



# Photovoltaic systems of the future

## Reliable technology for clean energy

The sun, the greatest source of available energy, generates approximately  $1.08 \times 10^{18}$  kilowatt hours (kWh) per annum – about 10,000 times more than the world's primary energy requirements. Part of this solar energy can be transformed into electrical power with the help of photovoltaics.

As a subsidiary of the GILDEMEISTER Group, a+f GmbH represents a long tradition in mechanical engineering and the company has successfully worked for years in the industrial generation of solar energy. Our stationary SunCarrier fixed systems were created to extend the use of solar energy in all forms of terrain.

With the SunCarrier fixed system, a+f GmbH presents turnkey project solutions which provide optimum energy yields and the shortest payback times. The just-in-time delivery of the individual components, as well as construction sequences optimised over several years, enable the smooth series production of the individual systems. Implementation of the respective construction project phases, such as the foundation, frame and module installation is performed in a process-optimized manner in daily cycles.

In addition to the worldwide development and execution of major projects, a+f GmbH also specializes in providing services to and the operation over several decades of, solar power stations.

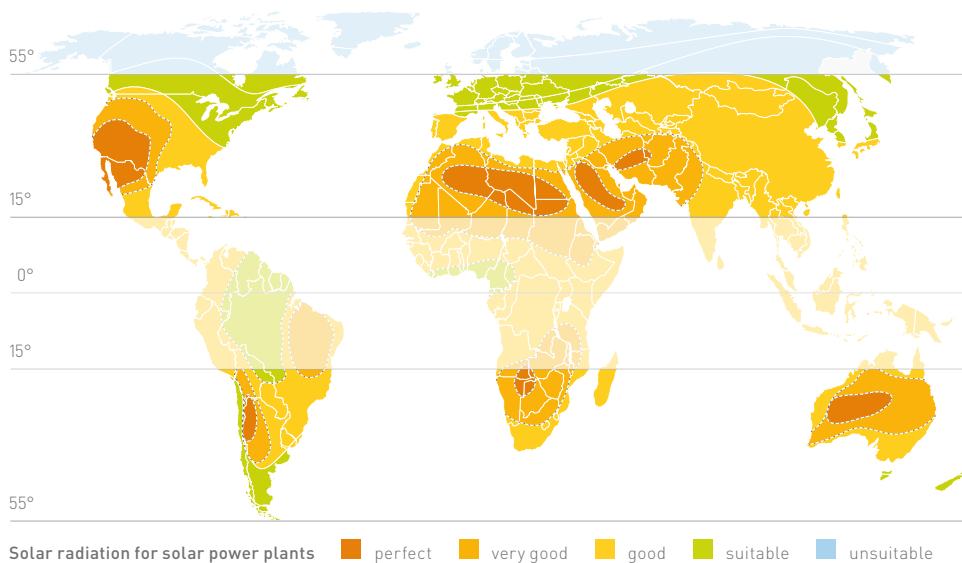


## The ideal solution for every application

With the continuous expansion of our series of products we are extending and optimizing our ability to serve customers with a wide variety of requirements based on the market, location, technology and investment environment.

For example, the SunCarrier fixed range is the perfect solution for markets where irradiation values are not perfect and as a result it is not possible to achieve the shortest payback times by means of tracking. Due to its intelligent design features, the optimum use of economies of scale and the capacity for installing a range of pitch angles, the SunCarrier fixed is far superior to other stationary systems.

## Area of deployment: between 15° and 55° north or south latitude



## Intelligent inverter concept

To guarantee the optimum performance of installations, a+f GmbH incorporates the advantages of decentralized network supply. The systems are conceived such that every table is furnished with a separate inverter. This improves system efficiency due to the shorter DC cable lengths. Moreover, the highest levels of availability are guaranteed because even if an inverter fails only a small portion of the site's overall power generation is lost. Furthermore, these inverters can be quickly replaced by local staff and do not require any additional installation space in contrast to central inverters.

# SunCarrier fixed

## Sturdy design with a major impact

The elevated and edged frames of the SunCarrier fixed represent an impressive combination of intelligent design and high quality materials. The fixed frame construction is designed to incorporate framed photovoltaic modules from various manufacturers and consists of corrosion-resistant cold-rolled, galvanized-plated steel profiles. These profiles also provide an extremely high degree of stiffness.

The table dimensions of the system can be customized to meet the requirements of each site. In addition, the permanent elevations are offered in various pitch angles between 20° and 30°, enabling installation up to the borders of the land. Depending on the table length and type of module used, up to 48 kWp of power can be installed per table.

To prevent plant cover from casting shade on the modules, the modules are installed in sufficiently large distance from the ground. As a result, the ground can also continue to be used after the installation of the solar power plant (e.g. for raising livestock).

## Why stationary systems from a+f GmbH?

By offering different pitch angles to perfectly align the module surface to the sun, the SunCarrier fixed series offers an ideal relationship between the available module surface and the material to be used. The optimized and simple installation process also shortens the time needed to erect the individual tables. In addition, SunCarrier fixed systems can compensate for sloping or uneven ground conditions and be installed without difficulty. The systems can also be adapted to various types of foundations in a wide variety of locations and ground conditions.

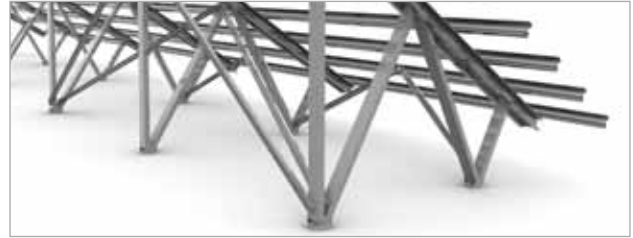
Its special construction and design for high wind and snow loads make the SunCarrier fixed an attractive solution for regions with specific building regulations or special weather conditions. Furthermore, thermal effects for module cooling (based on tracking expertise) can be used to obtain an additional 1% yield in comparison to conventional stationary elevation structures. Due to the different pitch angles of the module surface, the system can be ideally adapted to local circumstances, enabling their possible use in a wide range of countries.

# Hard Facts



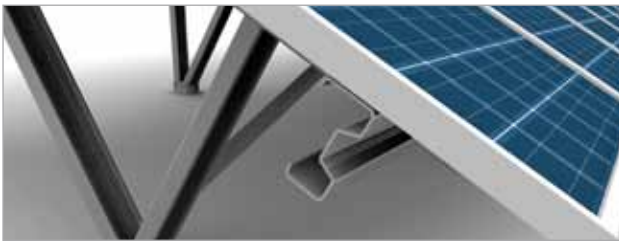
## Screw-in foundation

Screw-in foundations are screwed into the earth with pinpoint precision and without any excavation. They are suitable for almost all types of soil as well as slopes and can be flexibly adapted to the highest loads. The galvanized screw-in foundations stand out due to their quality, long lifetime and easy dismantling and are therefore particularly environmentally-friendly. Alternatively, concrete or ramming foundations can be used.



## Frame construction

The frame construction stands out due to its matured structure which is reached by an optimised material usage. Moreover, the frame construction is characterised by a very good corrosion resistance and long lifetime. With the help of a variable stringer span, the construction can be adapted to local conditions (e.g. wind and snow loads) and therefore achieve an optimum utilisation of material. The triangular geometry of the props also provides a very high rigidity to the whole structure.



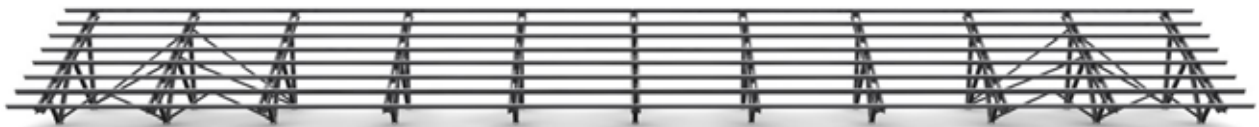
## Profiles

The SunCarrier fixed profiles are made out of a cold-rolled, galvanize-plated primary material, which is shaped into the typical sigma or c-shape by roll forming. The steel expenditure is reduced by the use of cold-rolled profiles in comparison to conventional steel profiles and therefore an ideal strength-to-weight ratio is attained (high rigidity, low weight). In addition, assembly times on site are clearly reduced by ready-to-assemble profiles.



## Modules

It is possible to install all common types of module on the SunCarrier fixed. The table is ideally adapted during the project planning phase to the external circumstances and the respective module types. The module is attached with clamps certified by the module manufacturer.



# Technical data

Stationary system	SunCarrier fixed
Material	cold-rolled, galvanize-plated steel sheet
Mounting system	customized according to the project and module type
Foundation	screw-in foundation, concrete foundation, or ramming foundation, depending on the ground structure
Pitch angle of module surface	between 20° to 30° available, determined during the project phase
Installation area	based on table length and module size
Height above clearance surface	based on module size and pitch angle
Power	up to 48,000 Wp* per table depending on table length and module type [*Watt peak = standard by which the power of solar cells and solar modules is measured]
Modules	all common types and sizes of modules may be used
Foundation depth	down to 4.00 m (screw-in foundation)
Statics	according to Eurocode 3 (Italy NTC 2008)
Wind load	130.4 km/h
Snow load	Si = 1.0 kN/m <sup>2</sup>
Maximum ground level elevation	up to 1,000 m above sea level
Area requirement	approximately 2.3 ha for 1 MW, depending on topography, location and vegetation
Area of use	open spaces from 15 to 55 degrees of latitude, northern and southern hemisphere

The images shown in this brochure may deviate from the original.

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