

The basis for your photovoltaic project



# Solar substructures *Miralux*



DRAINAGE AND  
DEWATERING SYSTEMS

HEAVY-DUTY  
SYSTEMS

**ROOF AND WALL  
SYSTEMS**

PLANTING  
SYSTEMS

BATHROOM AND  
KITCHEN SYSTEMS





**Miralux** solar substructures

## Our diverse range of products – from Flex to Green

Build a solid foundation for your photovoltaic project: whether putting together private or commercial photovoltaic systems, solar substructures hold the respective solar panels in place. We offer versatile, well-designed and absolutely robust mounts to fit every flat roof.

### Your advantages

Our products offer many advantages, for example they require minimal storage space, are simple to use and can be expanded by adding extra modules. They require no penetration of the roof cladding and they can be used together with green roofs.



### The basis for your photovoltaic project

We produce our solar substructures, for instance, as the **Miralux Flex** model, available as a south-facing or east-west-facing system. All substructures come with fixing elements that can be flexibly adjusted to hold commercially available panels. We can also provide suitable ballast blocks as well as ballast supports. To do this, we work with an external engineering office to draw up individual ballasting plans for your project.

Our range of products also features solutions that combine photovoltaic systems with extensive roof planting – both for existing green roofs thanks to our green-roof mounting system for **Miralux Flex** and also for new builds with our **Miralux Green** system. Discover our full range of products for mounting solar modules and benefit from our 15-plus years of experience in the solar industry.

*“Our range of products features solutions that combine photovoltaic systems with extensive roof planting.”*



### At a glance: reap the benefits of **Miralux**!



#### Space-saving and easy to use

The **Miralux Flex** systems are designed to save space during transport and on site.



#### Fast and secure assembly

Thanks to their prefabricated folding elements, the systems can be installed extremely quickly and easily.



#### Flexible module fixing elements

Our flexible module fixing elements are able to hold all kinds of commercially available panel sizes.



#### Easily extendible

The solar substructures' modular construction allows the systems to be easily extended, also retroactively.



#### Aerodynamic design

Our **Miralux Flex** is designed to ensure excellent structural stability thanks to its favourable flow behaviour, even when exposed to high wind speeds.



#### Screwable ballast options

We also offer suitable ballast blocks for green and gravel roofs that can be screwed to the **Miralux Flex**.



#### Integrated cable channels

Our solar substructures are designed so as to incorporate cable channels for easy installation between the modules.



#### Easily combinable with a green roof

Our green-roof mounting system for **Miralux Flex** raises the substructures by 60cm, facilitating their combination with extensive green roofs. In the case of new builds, however, our standalone **Miralux Green** system uses the installed roof planting as ballast for the substructure.





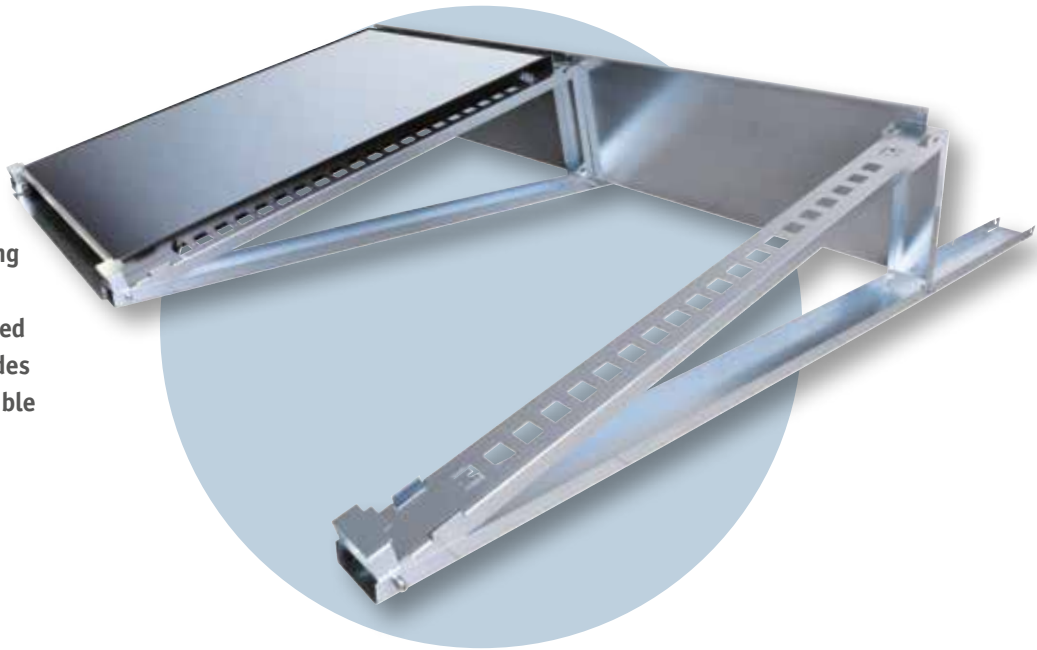
Miralux Flex for east-west or south-facing systems

# The ideal basis for the energy transition!



When planning photovoltaic installations, the use of time-saving systems means a shorter assembly period and considerable cost savings.

Our **Miralux Flex** solar substructures guarantee exactly that: the products require minimal storage space and are simple to use while still facilitating a thoroughly robust system thanks to their construction in hot-dip galvanised steel or, on request, aluminium. Besides this, they are quick and easy to assemble on the roof surface.



## Technical specifications for the **east-west version**

Type of mounting system	Non-penetrative, low-ballast mounting system for flat roofs
Material	Magnelis®-coated hot-dip galvanised steel
Angle	10° or 15°
Shadow angle	Selectable (<15°)
Lateral distance between modules	Module-specific
Cable channel	Integrated ( <i>into the base support</i> )
Preservation of structures (optional)	EPDM or needle felting ( <i>pre-installed on request</i> )
Processing time	Incl. cabling approx. 10 mins per kWp ( <i>two-man installation</i> )

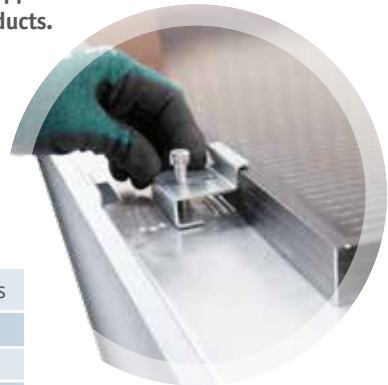
With the help of the supplied flexible module clamps, **Miralux Flex** can hold various commercially available panel sizes and guarantees maximum flexibility for every photovoltaic project.

Additional ballast supports are available for the substructures, as are screwable ballast blocks made from concrete. They ensure a stable and safe installation. Beyond the safety aspect, they facilitate a professional arrangement on the roof and make the systems even easier to care for and maintain as they lift the structures above the roof surface.

The substructures are always available in two orientations: either as a south-facing mounting system for a yield-oriented installation or as an east-west system for continuous energy generation throughout the day. Both are easy to use and ensure maximum safety.

The two versions have been aerodynamically optimised in wind tunnel tests, making them comparatively low ballast. Installation of the models requires no penetration of the roof cladding and integrated cable channels guarantee reliable cabling. What's more, the system is easy to extend retroactively thanks to its modular design.

Suitable end and mid clamps are always supplied with our products.



## Technical specifications for the **south-facing version**

Type of mounting system	Non-penetrative, low-ballast mounting system for flat roofs
Material	Magnelis®-coated hot-dip galvanised steel
Angle	10° and 15°
Shadow angle	Selectable ( <i>approx. 20° as standard</i> )
Lateral distance between modules	Approx. 25mm
Cable channel	Integrated ( <i>into the base support</i> )
Preservation of structures (optional)	EPDM or needle felting ( <i>pre-installed on request</i> )
Processing time	Approx. 12 mins per kWp ( <i>two-man installation</i> )

Further details, e.g. concerning the width and weight of the mounting elements, are determined by the specific modules to be assembled.





# Tool-free installation in next to no time

## A stable substructure in just a few steps

Assembling our **Miralux Flex** solar substructures couldn't be easier, as seen here with our east-west version.



Bend the upper frame section at the perforation and hook it into the slot on the lower section.

Push the fixing component into the slot at either end of the substructure.



Attach the flexible module fixtures to mount the solar panel.



If needed: screw on the ballast blocks, which are available as additional components.

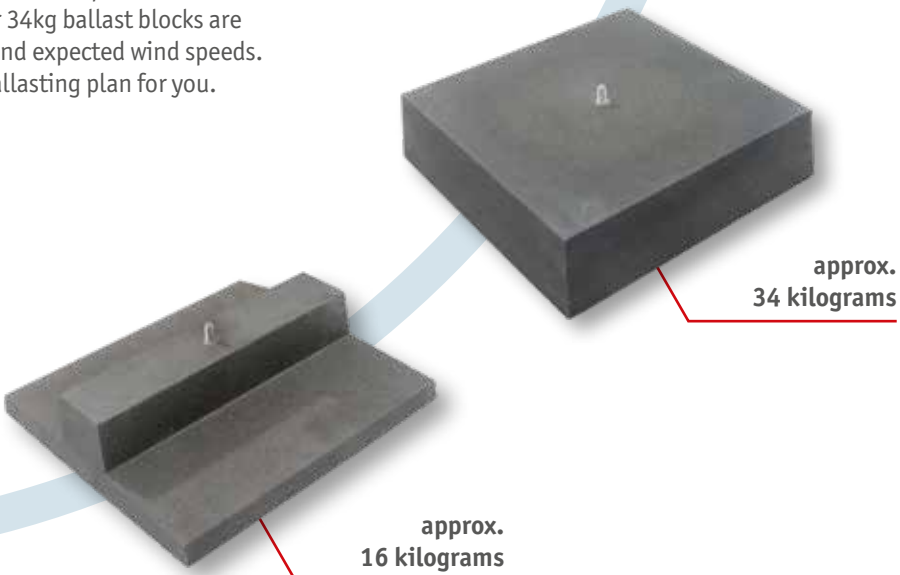
*You can find detailed assembly instructions online in our download area.*

# Ballast blocks



Our concrete ballast blocks ensure a stable and safe installation of the solar substructures on gravel and green roofs. Besides the increased safety gained from fixing the solar substructures in place, they also ensure the photovoltaic system is professionally arranged on the roof and facilitate its care and maintenance. The blocks, which sit on top of the building protection mat, can be surrounded with gravel or roof planting after being installed.

They also lift the solar substructures above the respective roof surface, making them easy to look after. Our 16 or 34kg ballast blocks are recommended depending on the region and expected wind speeds. We are happy to draw up the necessary ballasting plan for you.





## Miralux Green solar substructure for green roofs

### Symbiosis of roof planting and solar power

The combination of roof planting and photovoltaics presents a perfect symbiosis of a building's ecological and energy aspects. A green roof improves the microclimate, absorbs CO<sub>2</sub>, supports biodiversity and acts as a natural form of heat insulation. A photovoltaic system generates clean energy in a way that is environmentally sound and reduces the need for conventional energy production. Clients often find themselves facing the dilemma of having to choose between the two systems. This is where we come in with our **Miralux Green** solar substructure for green roofs.

The **Miralux Green** does away with the challenges that would otherwise prevent the two capabilities from being combined. Our innovative photovoltaic substructure can be used for both east-west and south-facing set-ups and is directly integrated into the extensive roof planting. Here, the sedum mat and the layer of granulate act as ballast while ensuring the construction is securely anchored down. This enables you to use your roof space in a way that is both sustainable and aesthetically appealing.



#### Installation in just a few steps

A drain mat along with a filter and protection fleece is laid on top of the root barrier foil **1**.

The substructure's support plates **2** are then put in position and covered with a glass fibre mesh **3**.

Next, the photovoltaic substructure is assembled on top of the support plate. Once the entire system has been put in place, the granulate and plant cover can be added **4**.

The glass fibre mesh, which is completely weighed down by the extensive roof planting and granulate, securely fixes the structure to the substrate like an invisible floor anchor.

To finish, the solar panels can then be attached to the substructure and wired together.

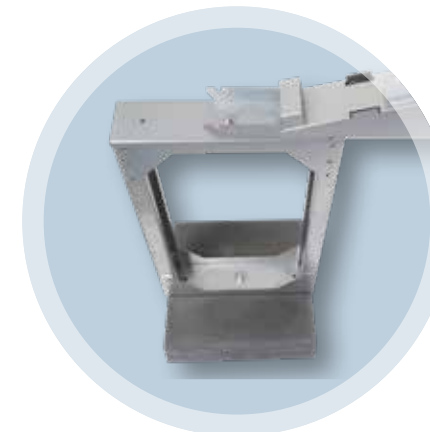
## Green-roof mounting system for **Miralux Flex**

### Simple combination for existing and new buildings

The additional mounting system for our **Miralux Flex** solar substructures enables you to combine the potential of solar energy and extensive green roofs on one roof surface. Not only does this allow new green roofs to be planted in combination with photovoltaic substructures, it also enables existing extensive roof planting to be retroactively equipped with solar installations. The system's fixed elevation of 60cm leaves plenty of room between the sedum and the modules, ensuring the plants' healthy growth. The raised position also makes it easier to care for and maintain the green roof.



Everything from a single source



The mounting system with screw connections at the top and bottom acts as a bridge between ballast and substructure

The **Miralux Green** system in practice







## Our aspiration: *to simply be better.*

### More than **45 years** of metalware production

Richard Brink is a medium-sized and growing family-run company from Schloss Holte-Stukenbrock. Founded in 1976, the company is now managed by the second generation. With over 150 employees and our own, also internationally oriented sales team based, for instance, in Austria, France and the Netherlands, we have established ourselves in the market as a specialist for premium metal goods.

We develop, produce and sell innovative drainage and dewatering solutions alongside versatile planting systems and products for roofs and walls, industry, bathrooms and kitchens.

In doing so, we place great importance on a level of workmanship and dimensional accuracy that satisfies our customers' own high standards. Not only are we known for our broad range of standard products, we have also made a name for ourselves as a manufacturer of individual, custom-made products and bespoke solutions.



*We help you personally*

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