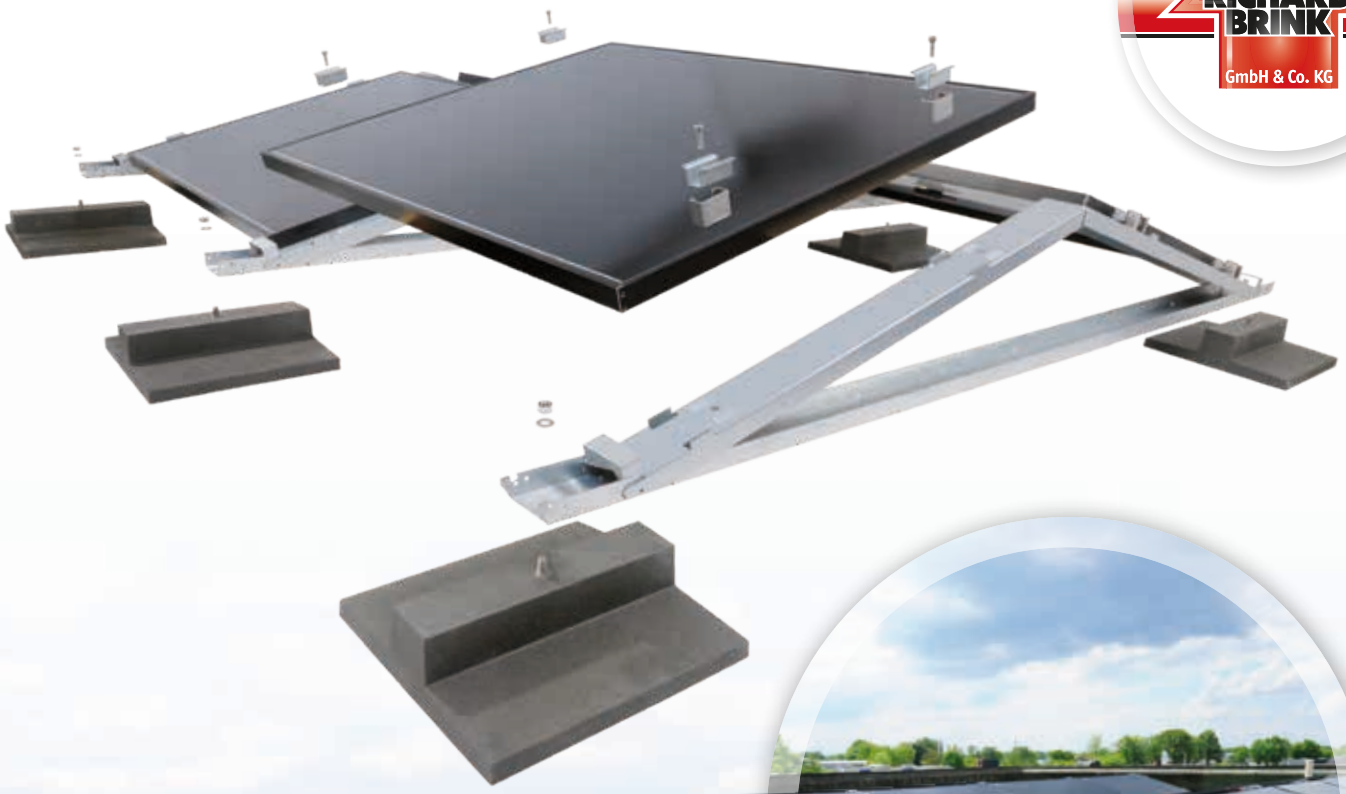
RICHARD BRINK GmbH & Co. KG



Miralux Flex

Solar substructures

Miralux Flex
Solar substructures

Miralux Flex solar substructures for east-west-facing panels

Our solar substructures made of Magnelis®-coated hot-dip galvanised steel or aluminium *(upon request)* are characterised by their remarkably easy assembly and **non-penetrative installation**.

What's more, the flexible fixing elements ensure commercially available panel sizes also fit the substructures.

In a nutshell:

- ***Very easy to handle***
  The Miralux 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.

- ***Problem-free expansions possible***
  The systems can be easily extended also retroactively thanks to the solar substructures' modular construction.

- ***Aerodynamic design and screwable ballast blocks***
  Our Miralux products are designed to guarantee excellent structural stability thanks to their favourable flow behaviour, even when exposed to high wind speeds. We also offer two types of ballast block for green and gravel roofs that can be screwed to the Miralux Flex.

- ***Integrated cable channels***

- ***Minimum load increase, maximum stability***
  Our systems are lightweight, reducing distributed load by up to 75% compared with traditional systems.

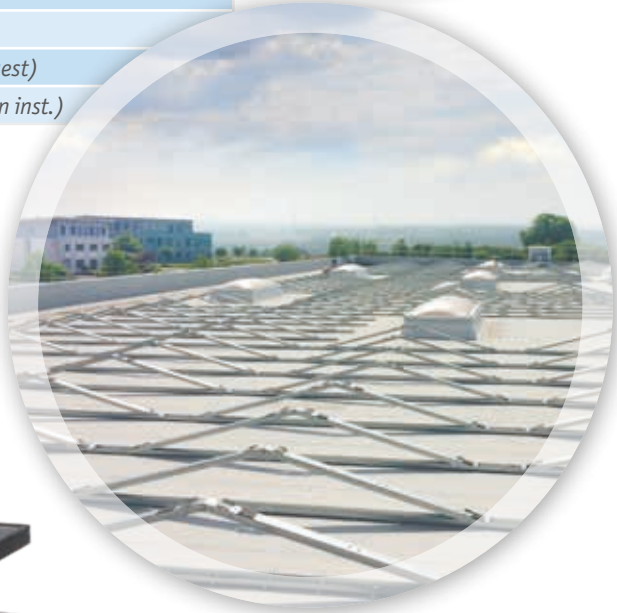
- ***Proven lightning current carrying capability***

- ***No mixing of trades with respect to warranty rights***
  You will not be subject to any warranty obligations for roof surfaces due to the separate installation of solar substructures if such installation does not require the roof cladding to be penetrated.

Technical specifications for the east-west version

Type of mounting system	non-penetrative, low-ballast mounting system for flat roof surfaces
Material	Magnelis®-coated* hot-dip galvanised steel
Angle	10° or 15°
Shadow angle	*(< 15°)*
Lateral distances between modules	module-specific
Cable channel	integrated *(into the base support)*
Preservation of structures *(optional)*	EPDM or needle felting *(pre-installed on request)*
Processing time	incl. wiring approx. 10 mins per kWp *(two-man inst.)*

** For more information about Magnelis® coatings, please see our website or contact us directly.*



Our solar substructures are also particularly suitable for green and gravel roofs when used in combination with screw-on ballast blocks and mounting systems *(see last double page)*.

"Ballast support" for existing ballast blocks

Miralux Flex
Solar substructures

Made in Germany

Miralux Flex solar substructures for south-facing panels

Our solar substructures made of Magnelis®-coated hot-dip galvanised steel or aluminium *(upon request)* are characterised by their remarkably easy assembly and **non-penetrative installation**.
What's more, the flexible fixing elements ensure all commercially available panel sizes also fit the substructures.

In a nutshell:

- ***Very easy to handle***
  The Miralux 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.

- ***Problem-free expansions possible***
  The systems can be easily extended also retroactively thanks to the solar substructures' modular construction.

- ***Aerodynamic design and screwable ballast blocks***
  Our Miralux products are designed to guarantee excellent structural stability thanks to their favourable flow behaviour, even when exposed to high wind speeds. We also offer two types of ballast block for green and gravel roofs that can be screwed to the Miralux Flex.

- ***Integrated cable channels***

- ***Minimum load increase, maximum stability***
  Our systems are lightweight, reducing distributed load by up to 75% compared with traditional systems.

- ***Proven lightning current carrying capability***

- ***No mixing of trades with respect to warranty rights***
  You will not be subject to any warranty obligations for roof surfaces due to the separate installation of solar substructures if such installation does not require the roof cladding to be penetrated.

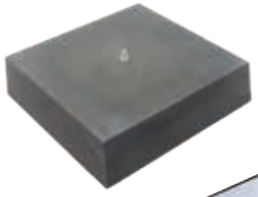
Technical specifications for the south-facing version

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

** For more information about Magnelis® coatings, please see our website or contact us directly.*

Further details such as the width of the mounting elements and also their weight are determined by the specific modules being used.

Our solar substructures are also particularly suitable for green and gravel roofs when used in combination with screw-on ballast blocks and mounting systems *(see last double page)*.



"Ballast support" for existing ballast blocks

Ballast blocks for *Miralux Flex*
East-west and south-facing versions

Our ballast blocks made from polymer concrete have a base area of 400 x 400mm and 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. The blocks, which sit on top of the building protection mat, can be surrounded with gravel or roof planting after being installed. Moreover, they raise the solar substructures above the respective roof surface, making them easy to look after. Our 16 or 34kg ballast stones are recommended depending on the region and the expected wind speeds. We are happy to draw up the ballasting plan required here.

Green roof mounting systems for Miralux Flex East-west version

Besides facilitating the initial planting of green roofs in combination with photovoltaic systems, the additional mounting system can also be used to retrofit existing green roofs with solar panels. The system as such consists of the mounting system and the additionally required ballast blocks and is intended to be used with the east-west version of the Miralux Flex.

Miralux Green solar substructures for green roofs

This solar substructure, which can be used for a south- or east-west-facing photovoltaic system, is directly integrated into the roof planting. Here, the layer of granulate and plant cover also double as ballast on top of the substructures support plates a.

The roof planting is structured as follows:

A drain mat featuring protection and filter fleece is laid over the root barrier foil. The substructures support plates are then put into position and covered with a glass fibre mesh. Next, the solar substructure is assembled on top of the support plate. Once the entire system has been built and put into position, the granulate and plant cover can be added. The glass fibre mesh, which is completely weighted down by the roof planting and granulate, firmly holds the structure to the substrate like an invisible floor anchor. To finish, the solar panels can then be secured to the substructure and wired together.

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