



## PROFINESS FLAT

Mounting systems for flat roofs



# 1 Flat roof systems for every type of roof

PROFINESS flat roof systems are designed as very low-ballast systems for mounting photovoltaic modules on flat roofs. They are suitable for installation on all conventional roof coverings (concrete, bitumen, foil etc.). An installation on trapezoidal sheet metal roofs is also possible with the appropriate connection and screws.

South and east-west systems up to a roof pitch of 5° can be installed only ballasted (penetration-free). The systems are suitable for installation on roof pitches of up to 10° but must be secured against slipping (e.g. with perforated tape), when the slope is over 5°. The roof-parallel loading system can be installed up to 30° roof pitch.

- Our flat roof systems are already **completely pre-assembled** to minimise the on-site installation work
- Thanks to various installation angles (south 10° and 15°, east-west 10°), mounting options parallel to the roof, and customised mounting options, you can achieve **maximum output with your photovoltaic system**
- **Expertised** by I.F.I. Institute for Industrial Aerodynamics of the University of Applied Sciences Aachen on the basis of wind tunnel tests
- **Certification in accordance with DEKRA** construction type approval
- Since January 2011, **more than 5000 systems with a total output of more than 300 megawatts have been installed**

## East-West System

## 2 PROFINESS Flat East-West

Flat roof system in east-west orientation

### a) Conception and installation of the PROFINESS east-west system

- Elevation with a module **mounting angle of 10°**
- **Including integrated mounting feet** on Regupol protection pads, which ensure stability and also serve as a ballast holder of the ballast block (usually a flagstone)
- **Low ballasting** thanks to the latest wind expertise
- Row connectors with slotted holes for **variable length compensation**
- A **ballast plan** is calculated by our static engineers **on a project-specific basis** and can be estimated in advance during the quotation phase using our planning software

### b) Cross-sections east-west system

We have completely revised our east-west system and optimised it accordingly, so that the new design and a new wind expertise ensures a considerable saving of space on the roof and a significant reduction in the amount of ballast required.

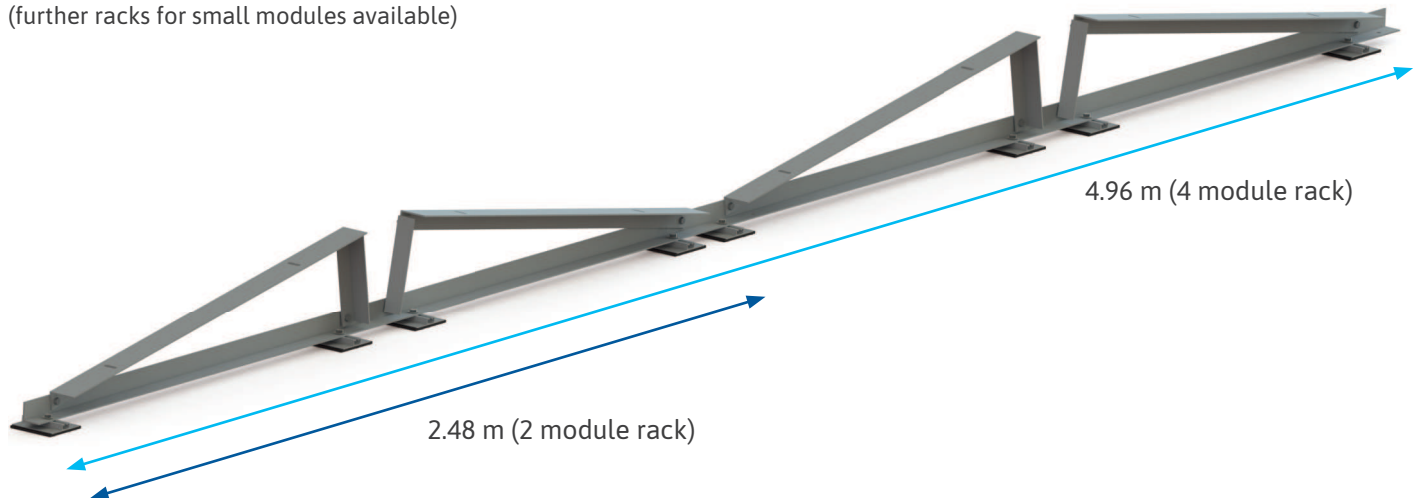
### System already completely pre-assembled!

Each flat roof system is pre-assembled and screwed together individually to your module size and the condition of the roof.

On site, the bracket only needs to be folded up and fastened with a screw.

### Cross-sections for module frames from 1050 mm - 1170 mm

(further racks for small modules available)



#### Shorter base rails for better space usage

We were able to significantly shorten our base rails compared to the old system, which reduces the **space requirement per rack by 8 %**.

In addition, we were able to reduce the ventilation gap between the modules to 18 cm, which saves space but still maintains a **comfortable service corridor between the modules**.



#### New wind expertise – significantly less ballast

A new wind expertise from the I.F.I.

**Institut for Industrial Aerodynamics GmbH** has enabled us to **significant savings in the ballasting** required compared to the previous report.

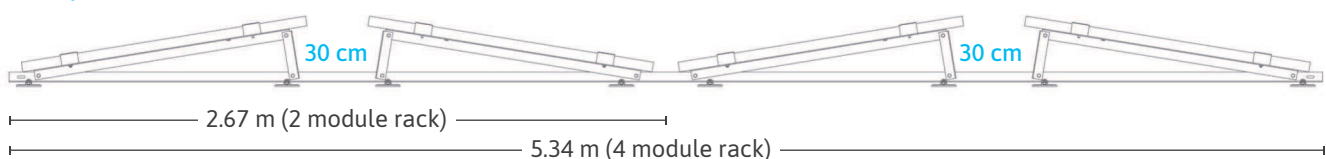
This means that the ballast required in low-wind regions for homogeneous, contiguous module fields **can be up to 80 % less**.

You can still use the existing east-west system. Depending on the project, the larger ventilation gap (which also serves as a maintenance corridor), in relation to our new wind reports, even less or no additional ballast is no longer necessary.

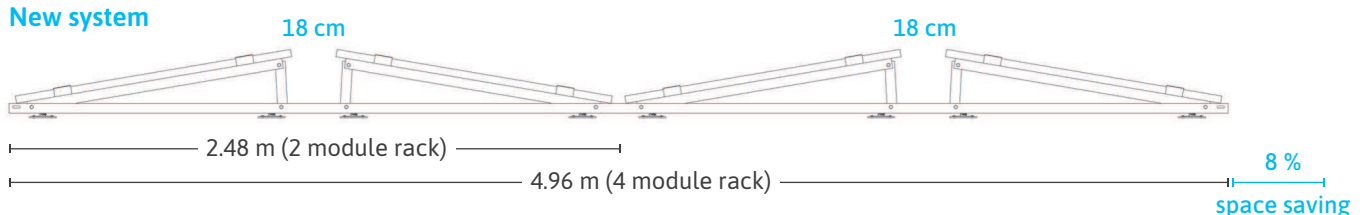
### A comparison of both versions:

Example module size 1762 x 1134 x 30

#### Old system



#### New system





### 3 PROFINESS Flat South

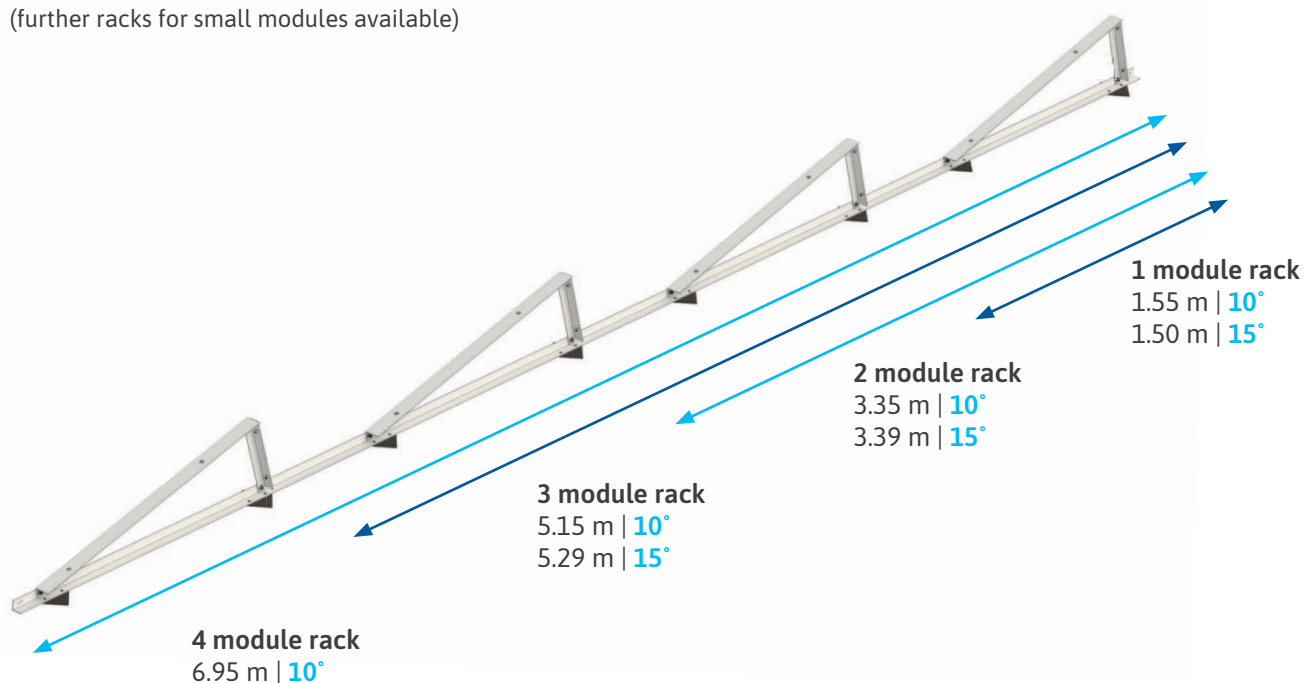
#### South-facing flat roof system

##### a) Conception and construction of the PROFINESS south-system

- Elevation with a **module mounting angle of 10° or 15°**
- **Including** ballast holders on Regupol protection pads, which serve as a ballast holder for the ballast block (usually a flagstone)
- Alternatively, additional ballasting is possible via the wind shield
- Row connector with slotted holes for **variable length compensation**
- **Including wind shield** with slotted holes for expansion compensation
- A **ballast plan is calculated** by our static engineers **for each project** and can be estimated in advance during the quotation phase with our planning software

##### Cross-sections standard south-facing system for module frames from 1050 mm - 1170 mm

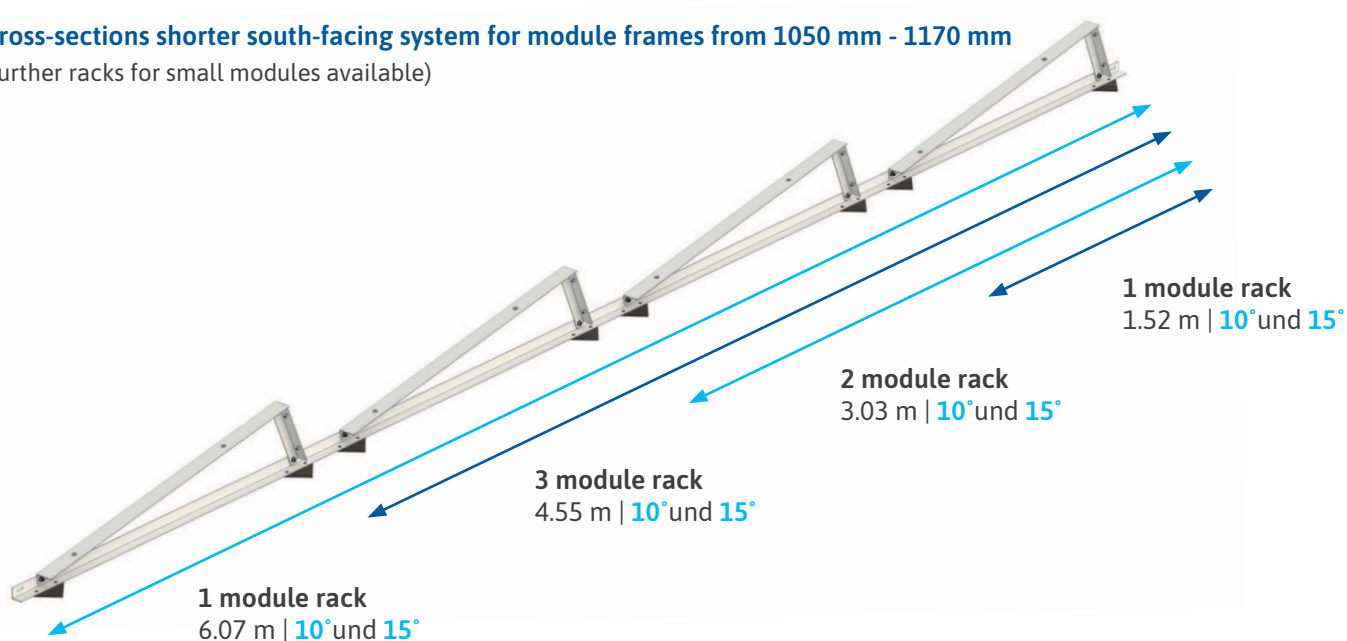
(further racks for small modules available)





#### Cross-sections shorter south-facing system for module frames from 1050 mm - 1170 mm

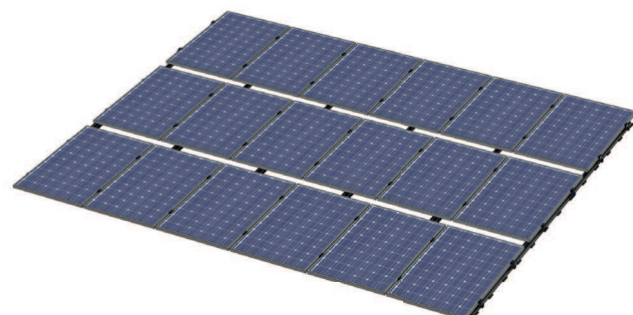
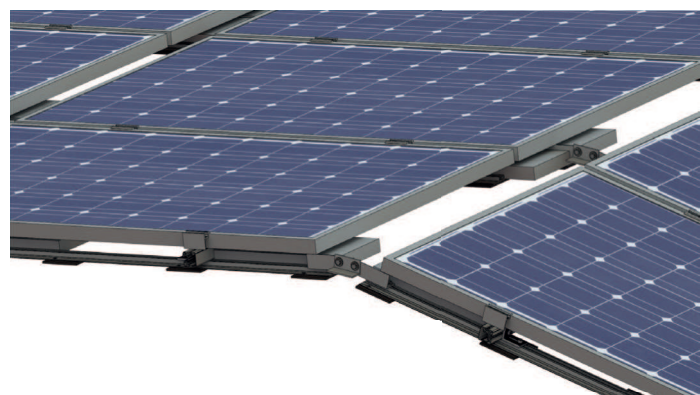
(further racks for small modules available)



## 4 PROFINESS Flat Syncro

### Roof-parallel loading system

- **Stable cross composite construction with aerodynamically optimised row spacing**
- The system with double-sided covering is connected via the roof ridge and thus additionally secured against slipping. For single-sided installations, it is necessary to attach an anchor to the ridge or a counterweight on the other side of the roof
- The ballast holders are screwed to the cross rail for **optimum force transfer** to the entire surface of the structure
- **Low ballasting** required for connected module fields
- A **ballast plan** is calculated by our static engineers **on a project-specific basis**





## 5 Special Solutions

### a) Profiness Flat Alpin

East-west system for particularly high snow loads

With our PROFINESS Flat Alpin system, each module is carried by two individual racks. The modules are clamped on the long side of the frame. This enables particularly large modules to withstand higher snow loads.

The frames of our Alpine system can withstand snow loads of up to 7 kN/m<sup>2</sup>.



### b) Installation on green roofs

Thanks to our customised production, we can respond to almost all local conditions to find individual solutions. For intensively greened roofs, we can 'uplift' our east-west system to 30 cm in order to preserve the green area and nevertheless calculate a ballast plan incl. proof of stability according to wind expertise.

In the case of extensive greening, we are glad to take a look at the project together with you to find a customised solution. Please feel free to contact us.



## Technical appendix

## Maximum safety for racks ...

Our flat roof systems are capable of carrying lightning current according to DIN EN 62561-1:2017-12.

The mounting rack is calculated in accordance with the currently applicable standards and, depending on the version usable up to alpine areas.

## ... and roofing

Regupol Resist protective mats are approved as a protective layer in accordance with DIN 18195 and can be manufactured with aluminium lamination (against plasticiser migration) or without.

The pads are already permanently attached to the mounting system.

**PROFINESS**  
CONSTRUCTION SOFTWARE

# CHECKLIST FOR AERODYNAMIC SYSTEMS

(flat roof & slightly pitched roofs)

## Quick guide:

- Roofing flat roofs can be done as completely as possible (flat roof) this ensures and saves the budget.
- Open a new entry or stop structural expansion for the entire roof system if your entry is closed.
- Roofing flat roofs is highly preferred for a flat pitch (low head loading).

*\*Measured only can reach further information or specifications. Dimensions of the article assigned to the roof.*

## customer address

name	project location (if different location)
street	name
city	street
phone	city
	phone

## building/location data

roof pitch degree		roof pitch in direction		building height	
length building edge east m		length building edge north m		building height m	
width load kN/m²		snow load kN/m²			

## solar panel data

quantity	length mm	width mm	height mm	weight kg
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## roof information

roof surface	load system kg/m²	is there an attic/parties?	height of attic/parties cm
additional information:	type		thickness mm

## mounting system

### mounting system

flat roof  
aerodynamic system - snow 10° or 15°

flat roof  
aerodynamic system - wind/west 10°

slightly tilted roof,  
roof parallel ballast system

We will choose the fitting weights of our mounting system according to your wind directions and available space on the roof.  
The dimensions of the mounting systems will be dependent on your individual offer.

Please sketch the planned array design or send us a layout plan!

www.profiness.de • Tel: +49 (0) 208 307 61 90 • Profiness GmbH • Buscher Waldweg 42 • 42478 Hügelsheim a.d. Ruhr

We are happy to help you with the realisation of your projects.

From the customised design to the exact positioning of the modules and frames, right through to the static calculation by our own static engineer and creation of a ballast plan.

Simply submit our application form for aerodynamic flat roof systems and a drawing of your required layout.

You can find the form in the download area on our homepage at [www.profiness.de](http://www.profiness.de) → Downloads.

Please also ask for our planning software,  
to plan your projects yourself.



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Further installation material for tiled roofs and other projects can be found online at

