



# Flat roof mounting system

Elevations and mounting solutions

# Static security on flat roofs



*Mounting directly in concrete roof*



*Multiple elevations*



*Inter-connected south facing elevations*

Flat roofs offer a perfect substrate for mounting of PV systems because of their large surface area.

For mounting the modules, ALTEC Systemtechnik AG has developed special mounting systems for a variety of roof characteristics. In cases where the optimal annual yield is required elevated mounting solutions are used.

Consequently the PV system can be customized to the site situation. For the best possible use of the roof area, elevation angles are arranged on a continuous base angle and bolted together on site.

Elevation angles are individually manufactured by ALTEC Systemtechnik AG with geometry to suit each project. Therefore it is necessary to confirm the existing roof pitch and the required angle of the modules.

Then the design is finalized and frames manufacture complete with holes for securing them



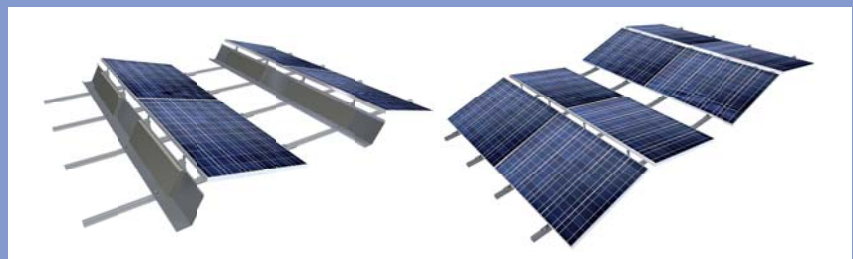
to the base angle. As standard individual parts are supplied ready to be bolted together on site. Alternatively, on request you can order pre-assembled or welded angle frames.

## Benefits

- robust aluminium construction
- ensures safe load transfer into the substructure of the roof
- quick and easy to assemble
- a variety of combinations
- elevations allow for single horizontal and vertical module mounting, as well as stacked modules



*Ballast free adhesive mounting*



*Optimised ballast system: south-facing and east-west*



## Variants

### Ballast free adhesive mounting

This elevation can be fixed to almost all foil and bitumen roofs without ballasting. The rails are fixed directly to the roof with special laminate pointing. The roof covering has to be sufficiently fixed to the load carrying frame. The installers must be certified before commencement. The modules can be arranged exclusively horizontally next to each other.

### Optimised flat roof ballast system

The low ballast flat roof mounting system from ALTEC Systemtechnik AG has been aerodynamically optimised through wind tunnel tests and is secured without any penetration of the roof. Available in a simple landscape layout for both south-facing or east-west systems. The mounting system conforms with Eurocode 1 in which local conditions are taken into consideration. With less than 15 kg/m<sup>2</sup> ballast over

the whole area covered by the array system is the possible on roofs with low load reserves. Framed modules of different manufacturers can be fixed in landscape with an elevation angle of 15 degrees.

Add to this the fact that good rear ventilation is achieved the ALTEC Systemtechnik AG low ballast system ensures a higher energy yield is achieved. The module is fixed on the frame under side by adjustable clamps. All components can be mounted with the use of only one tool. The modules can be arranged exclusively horizontally next to each other.

### Mounting directly in the concrete roof

Here the elevations are fixed with concrete anchors on the roof. A vertical and horizontal module assembly is possible. There can be multiple modules arranged one above the other on one elevation angle.

### Edging stone ballasting

If edging stones are used to weigh down the system, these are put directly onto the arms of the aluminium T-profile. You should put building protection mats under the elevation angles to protect the roofing and prevent indentations.

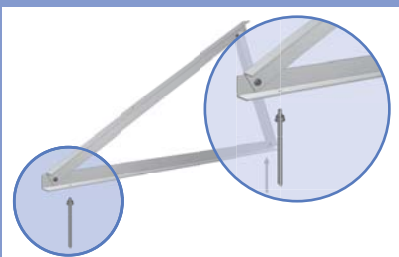
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The installation of wind plates can reduce the required ballast.

### Gravel ballast

To ballast a system with gravel, fix the elevation angles to corrugated plastic trays with hex head screws. The backfill with gravel can then occur with new or existing roof gravel. A vertical and horizontal module assembly is possible.

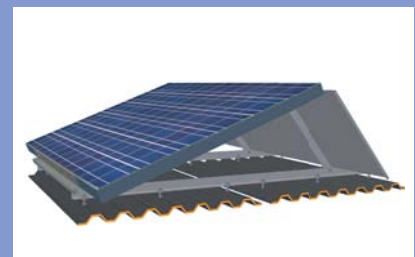
There can be multiple modules arranged one above the other on one elevation angle. The installation of wind plates can reduce the required ballast.



*Installation with concrete anchors*



*Edging stone ballasting*



*Ballasting with gravel on a corrugated plastic sheet*



**ALTEC** Systemtechnik AG  
Industriegebiet 1  
07924 Crispendorf  
Germany

Phone +49 3663 4210-0  
Fax +49 3663 4210-211  
info@altec-systemtechnik.de  
www.altec-systemtechnik.de