

INSTALLATION MANUAL

COLLECTOR FASTENINGS

Flat roof Vario Pro (item number 20200)

suitable for Weiser Power collectors



AKOTEC
SOLARTHERMIE

TECHNIK & NATUR IN EINKLANG



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Notes

Security in general:

Solar thermal collectors generate heat under solar radiation. All parts such as pipes, connectors, sensors, etc. pose a risk of injury from hot surfaces. In addition, solar thermal systems are operated with overpressure. If a solar thermal system is opened, this can lead to the escape of steam or hot water. Persons working on solar thermal systems must keep this in mind, wear protective clothing and follow safe procedures.

The tube sets are to be transported horizontally. A maximum of seven boxes may be stacked on top of each other. Our assembly sets are suitable for snow load zones one to two. Collectors must not be mounted in the roof edge areas of one meter due to increased turbulence. In storm areas, separate static calculations must be carried out.

Working on the roof:

When working on the roof, appropriate accident prevention measures must be taken. Before installation work, familiarize yourself with the accident prevention regulations for construction work of your employer's liability insurance association or have suitable persons instruct you. The following points must be observed to ensure safe installation of the solar components:

- for mounting the collectors use fall protection devices
- when using single ladders, the safety regulations must be observed
- jobs on steep roofs must be secured
- when working with angle grinders, safety goggles and gloves are mandatory
- both during installation and operation, collectors can reach a standstill temperature of up to 200°C due to incident light
- there is a risk of burns at the supply and return connections

Occupational Health and Safety:

- wear helmet, hearing protection and safety glasses
- create fall protection
- handle glass tubes with gloves only



Generally required tools:

- drilling machine
- measuring tape (folding rule)
- spirit level
- open-end wrench SW 13
- socket wrench SW 13
- hammer
- angle grinder



Important

Please observe all planning, installation and commissioning instructions. These are available for you at any time under <https://akotec.eu/en/downloads-2/> available.



Flat roof VarioPro

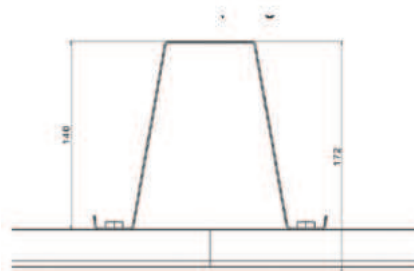
(item number 20200)

ONLY WEISER POWER

For wind load optimized mounting of AKOTEC
Weiser Power collectors on flat roofs

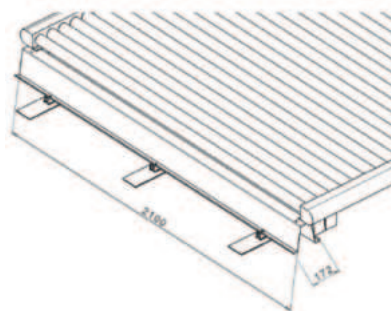
Scope of delivery basic set:

- 2 x support brackets
- 3 x aluminum mounting rail 2250 mm
- 6 x rail connector 180 mm
- 6 x mounting rails - end pieces
- 8 x washer DIN 125 A 8,4 A2
- 16 x hexagon head screw DIN 933 M8x25 A2
- 16 x nut M8 DIN 934
- 12 x washer DIN 9021
- 1 x building protection mat



Extension set:

- 1 x support brackets
- 3 x aluminum mounting rail 2250 mm
- 3 x rail connector 180 mm
- 8 x washer DIN 125 A 8,4 A2
- 10 x hexagon head screw DIN 933 M8x25 A2
- 10 x nut M8 DIN 934
- 6 x washer DIN 9021
- 1 x building protection mat



Technical data:

- the VarioPro mounting system is the interface between the AKOTEC collector series Weiser Power and the flat roof
- Dimensions: 2100 x 172 x 140 mm (L x B x H)
- Weight: 2,4 kg/Console
- Total weight substructure for a Weiser Power is:
12 kg (resp. 2,5 kg/m² Gross collector area)

Advantages of the VarioPro mounting system:

- low own weight of only 2.4 kg per console
- wind-optimized design - therefore little superimposed load required
- Coupling of the individual collectors for the distribution of load peaks (the load peaks always occur only partially)
- coupled mounting rails with an average spacing of 0.8 m, so the calculation of the roof loads can be assumed as a surface load and not as a point or line load (Structural analysis)
- quick & easy assembly due to optimally matched components
- conservation of resources due to low material requirements

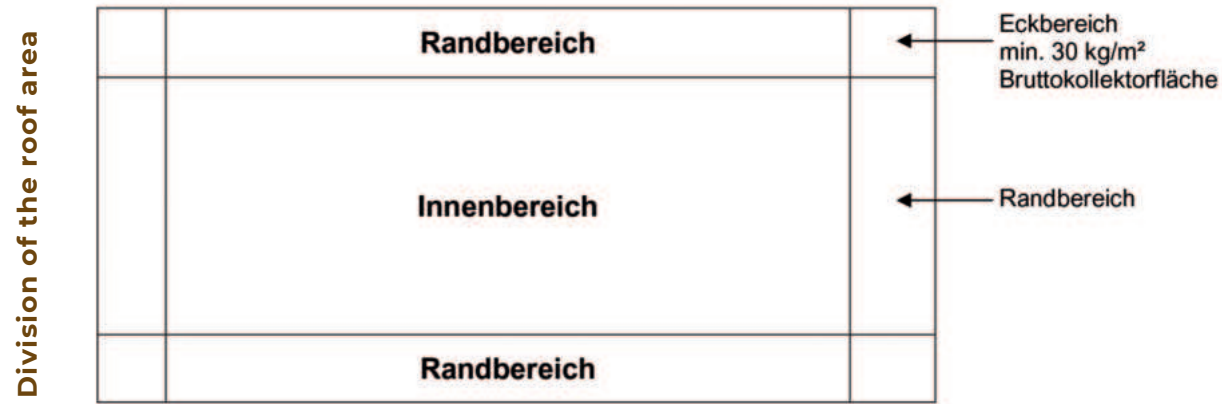




TO BE OBSERVED BEFORE INSTALLATION:

Dimensioning of the ballast:

The surcharge load is determined in accordance with the regulations applicable in Germany, which are summarized in DIN 1055-4. We will be happy to provide you with an exact calculation of the necessary superimposed load (additional weight without the collector's own weight and the substructure). For this we only need some key data.
(*) Please contact us if you are interested. The following minimum values provide basic protection against lifting and sliding of the system at an installation height of maximum 40 m.

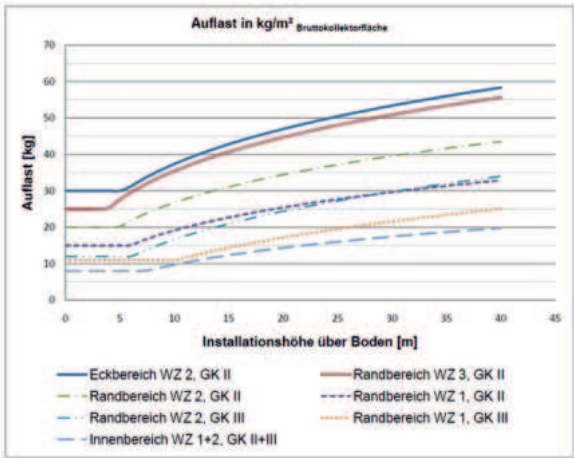


All-round clear distance of 1 m:

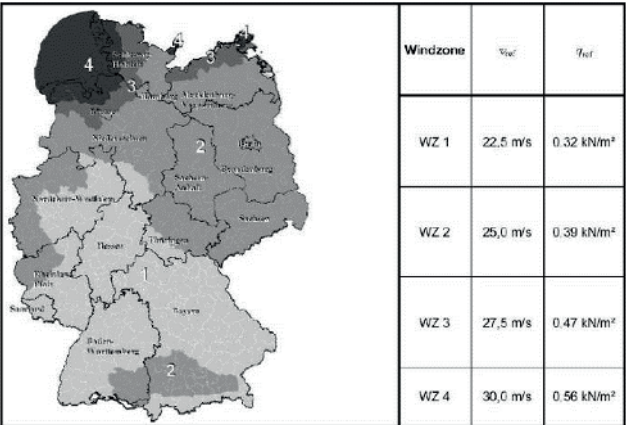
Single standing collectors with less than 30 tubes are weighted with at least 60 kg/m² gross collector area in the corner area, 40 kg/m² gross collector area in the edge area and 20 kg/m² gross collector area in the interior area. The mounting rails may be placed on the substrate on gravel and sand roofs without a structural protection mat.

Under no circumstances should the mounting system be placed directly on easily gliding roof materials such as bitumen membrane are placed. In any case, there is a layer of building protection mat to foresee.

(*) The calculation is not a substitute for a statics check of the respective construction project. No liability is assumed for expert opinions, statics evidence and damage.



terrain category II
terrain with hedges,
individual farmsteads,
houses or trees



terrain category III
Suburbs, industrial
or commercial areas,
forests



Wind zone map &
Terrain category
according to DIN 1055-4

Suitability of the roofing:

Bituminous membrane must be covered with building protection mat. Suitability for building protection mat is generally available, can be requested from the manufacturer.

PVC roof skin must be prepared with welded SGMA membranes. EPDM roofing membrane without plasticizer suitable for building protection mat.

Inspection of the roof cladding for proper condition and tightness is required. The warranty of the roof cladding must be taken over by other trades.



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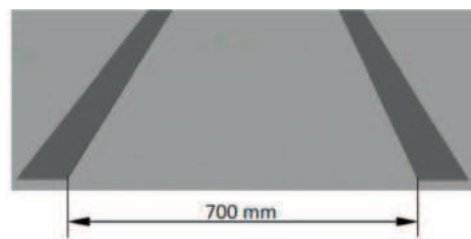
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1

Lay the construction protection mat in longitudinal direction

(of the mounting rails):

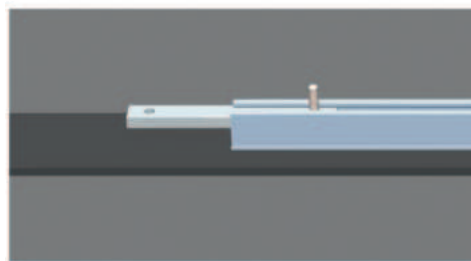
Due to its special properties, the construction protection mat ensures that the mounting rails are slip-proof and protects the roof cladding from damage. The distance between the strips is 700 mm.



2

Laying the mounting rails on the building protection mats:

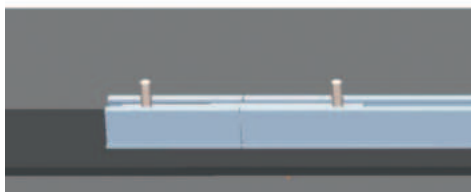
The mounting rails are positioned with the wider side facing downwards on the building protection mat so that the average distance is 800 mm. In case of several interconnected collectors, the mounting rails are connected with rail connectors. The screws serve at the same time fastening of the support brackets.



3

Attach the end pieces of the mounting rails:

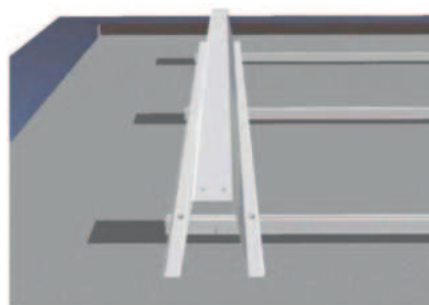
The mounting rail - end pieces are connected to the mounting rail by means of the rail connectors. The screws are also used here to fasten the support brackets.



4

Mounting the support brackets:

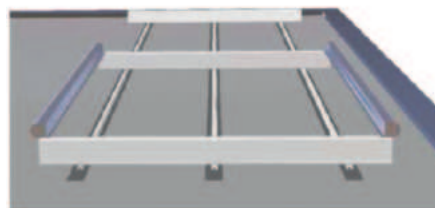
When mounting the support brackets, the M8 hexagonal bolts of the rail connectors are mounted through the holes provided in the support bracket. The washer DIN 9021 and the M8 nuts can be mounted but not yet tightened. The support brackets are placed centrally on the center of the joint between the mounting rails and end pieces.



5

Attaching the collectors:

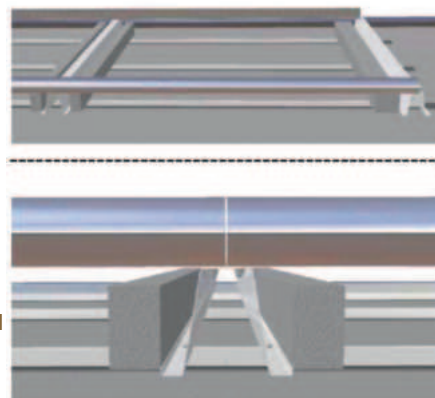
The headers are fastened with M8x25 bolts, DIN 125 washers and M8 nuts. After everything is aligned, the nuts of the mounting rails and the screws and nuts of the headers are tightened firmly.



6

Application of the necessary ballast:

The system is now weighted. The weights in the form of e.g. concrete lintels or lawn edging stones, are distributed on the mounting rails. The necessary ballast must be determined by calculating the wind load. We will gladly take over this service for you. Please contact us. (The calculation cannot replace a structural analysis by a structural analysis office and does not provide a guarantee in the event of damage.)





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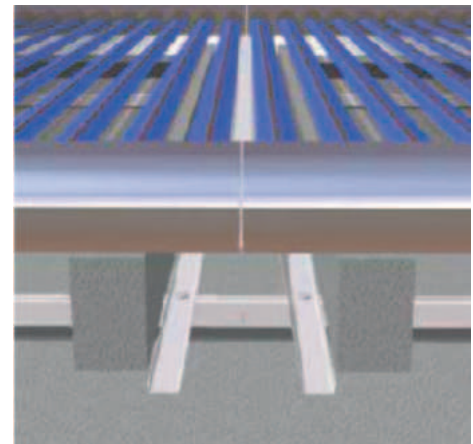
7

Mounting the vacuum tubes:

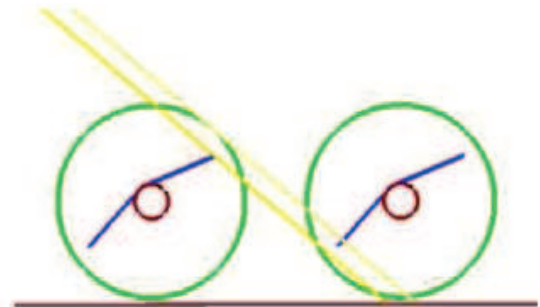
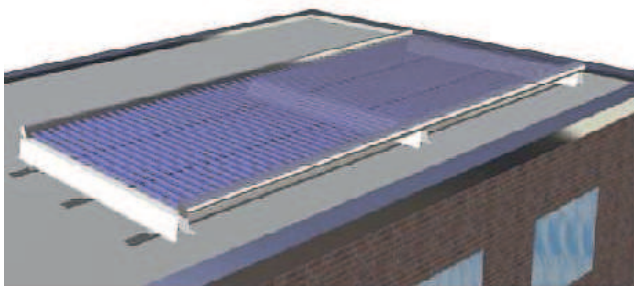
The AKOTEC Weiser Power product series can be mounted lengthwise or crosswise to the south orientation.

In the case of a transverse installation, the individual vacuum tubes can be slightly rotated so that as much absorber surface as possible can be illuminated even at a low position of the sun.

The maximum angle of attack of 35° provides improved absorber area and achieves low shading from the tube in front of it.



Example at 40° sun position and an absorber angle of attack of 35° .



WE ARE HAPPY TO BE THERE FOR YOU PERSONALLY:



AKOTEC
SOLARTHERMIE

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