SOLARSPEED

East-West Facing Landscape

Mounting instructions
Parts SolarSpeed

**STANDARD PARTS**

1. Basic-unit: Halfpremounted brackets + rail + protective rubbers*
2. Set L - profiles + support*
3. Ending rubber*
4. Clamps + bolts M8

**OPTIONAL PARTS**

- Pebble stone bin
- Alignment tool
- Concrete foot (12kg) + impact anchor

* For PVC roofs, we prescribe rubber with an aluminium coating

**Helpfull mounting tools**

- Screw machine
- Socket 8
- Hexagonal key set
- Screwdriver
- Hammer
- Chalk line

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Before installing!

Make sure the roof surface where the panels should be installed, is clean, dry and flat. Impurities such as gravel, sand and pebbles could lead to damage to the roof or instability of the installation.

Proper assembly of the self-tapping / plate screws

**Insufficient screwing**

**Excessive screwing** (Sealing is damaged)

**Properly screwed**

Screw the plate screws with a maximum torque of 10Nm

Step 1: assembling the basic-units

In contrast to the SolarSpeed south facing, the east-west facing will be delivered half premounted.

Required parts:

- SolarSpeed Basic-unit (half-premounted)
- Plate screws

- Secure the loose part of the mounting bracket to the rail by means of plate screws (Ø6.5).
- Fold the panel stop using a screwdriver.
- Fold it further until it forms an angle of 90° to the mounting bracket.
Step 2: assembling the basic-units

Required parts:

SolarSpeed Basic-unit E-W
Plate screws

Place the basic-units on a flat and stable roof surface.

Connect the basic-units by sliding the top of the rail of the first basic-unit into the connection piece at the back of the next basic-unit.

Fix by drilling 2 self-tapping screws (Ø6.5) or SS rivets into the pre-drilled holes on the side or on top of the connection pieces.

First, attach the connector with rubber protection as described in “Step 3” onto the basic-units at the end of each row, before attaching the basic-units to each other.
Step 3: attaching the connector with rubber protection at the end of the row (skip this step if you are working with the Avasco concrete foots)

Required parts:

- SolarSpeed ending rubbers
- Plastic plugs

Push the plugs into the pre-drilled holes of the connectors.

Remove the foil on the selfadhesive side of the connectors.

Attach the connectors onto the rail, by pushing the plugs into the pre-drilled holes. Attention! The adhesive side has to be places against the rail. Ensure that the rail is free from grease and dust.

Press the connectors firmly against the rail.

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Step 4: align the rows

Step 4.1: put down the rows

Tip! Use a chalk line to set a horizontal and vertical marking on the roof. When setting the markings, respect the minimal edge zones (see general remarks).

Required parts:

- SolarSpeed alignment tool
- Chalk line

Align the rows according to the plan, considering the length of the panels.
Tip! To easily determine and keep the distance between the basic-units, Avasco has designed an alignment tool. This is available on request.

Avasco concrete foot + impact anchor
Protective rubbers

**Step 4.2 Dilatation (Thermal interruptions)**

In order to accommodate thermal expansions of the SolarSpeed mounting frame, there must be a break every 24 panels in the horizontal direction and 16 panels in the vertical direction.

In the horizontal direction, a new basic unit must be started after the 24th panel. The distance between these 2 basic units must be at least 300 mm.

In the vertical direction, the dilatation is guaranteed by pushing the rejuvenation only into the rail of the previous basic unit after the 16th panel, but not to secure it with screws. As a result, the rows are still connected to each other (which benefits the required ballast) and there is also room for thermal expansion.

**Step 5: Placing the Avasco concrete foot (optional)**
The Avasco concrete foot is placed under the full length of the connected basic-units. This means that a foot is placed at the end and at the beginning of each connector basic-unit, as well as between the premounted bracket. Rubber protection is placed underneath each Avasco concrete foot to protect the roof surface.

On a green roof or pebble roof you must remove the planting and/or pebbles on the places the concrete foots should be placed.

Beware! Concrete foots must be placed on all places as described above. In the absence of one or multiple footings/bases, this could lead to serious stability problems.

**Step 5.2: Attaching basic units**

Once the Avasco concrete foots have been positioned correctly, the connected basic-units can be placed on the foots and attached. This attachment is done by SS rivets HPS-I 8/10x40. This plug is punched with a hammer into the provided holes. Next, the nail is hit or screwed in the plug. When punching the nail, it’s convenient to use a screwdriver so the SolarSpeed basic-units won’t be damaged.
Step 6: Installing the ballast  
Step 6.1: providing the ballast with L-profiles

Required parts:

Set ballast L-profiles with support  
Platescrew  
Ballast tile (provided by the customer)

Ballast could be placed on the sets of L-profiles, in case not enough ballast could be placed with the aid of ballast supports or in case an east-west connection must be provided to reinforce the frame.

The set consist of two L-profiles and a central support which blocks the deflection. These sets can be easily installed by securing SS self-tapping screws (ø6,5) or SS rivets into the pre-drilled holes. Each L-profile has to be secured by one self-tapping screw onto the rails and the central support.

When installing on concrete feet, a higher central support is provided to support the L-profiles.

An indication of the necessary ballast, the placing and the way of ballasting can be calculated with our free online software: solarspeed.ivasco.be
Step 6.2: providing the ballast with pebble stone bins

Required parts:

- Pebble stone bin
- Pebbles stones

Place the pebble stone bin underneath the basic-unit and fill the container with pebble stones. The pebble stone bins have a standard size. In case it isn’t possible to put these next to each other due to the length of the panel, these could be staggered on the ground profile of the basic-unit.

It’s forbidden to place gravel containers onto each other!

Step 7: Installation of the solar panels

Required parts:

- Clamps + hexagonal socket screws
- Solarpanel (Provided by customer)

Place the panels onto the mounting bracket and clamp them by using the appropriate end and intermediate clamps. The clamp instructions for the PV-modules must always be respected. Drawings are only for illustration purpose only.

Remarks:
- Use only SS mounting parts
- Clamp with the correct torque (max 10Nm)
Step 8: Grounding and potential equalization

According to some standards e.g. NEN1010 (legislation is different in each country) metal frames where solar panels are installed should be grounded.

Because the rows are connected electrical and mechanical by L-profiles, gravel containers (step 6: “installing the ballast”), no further connections have to be made between the different basic-units.

The separate fields have to be electrically conducted with each other via a ground wire. This connection can be made by clamping the isolation-free ends of the wire with a self-tapping screw on the basic-units.
**General remarks**

The installer always has to check whether the rubber protection (provided underneath the basic unit) suffices when installing onto a soft or half-soft underground. The installer also has to check the compatibility of the rubber protection with the roof surface.

For the following installations, special instructions have to be kept in mind (these specific versions can be delivered on demand):

• In an aggressive environment: all materials must be SS with the right specifications to determine the aggressive substances
• In sea salt environments: use anodized aluminium or SS.

Special attention to roofs with a pitch in east-west direction and to roofs that easily move up and down (e.g. as a result of vibrations from wind load or other causes):

• Without extra connections in East-West direction, the installation can tend to move downwards irregularly.
• These East-West connections can be attached to the North-South profiles and/or on the upper side of the bracket. This depends on the specific situation.
• In cases where you are dealing with roofs which have a negative and/or positive pitch, we recommend to make a connection at the roof-ridge.
• If in doubt, contact a specialized structural design agency.
• For roofs with a pitch in North-South direction and which have a negative and a positive pitch, we recommend to make a connection at the roof-ridge.

Clamps:

• Only use clamps that the module manufacturers allow and/or advise.

Special attention for installations on roofs in extreme circumstances:

• In the following situations/circumstances, the mounting frames of Avasco Industries are not suitable unless there is a written acknowledgement of Avasco Industries (concerning a specific project):
  * Roof height >20m
  * Roof pitch PVC roofs >2.5°
  * Roof pitch non-PVC roofs >4°
  * Places where nearby buildings of other objects cause a wind-tunnel effect or increased wind speed
Edge zone:
The installer always needs to keep the minimal edge zone, which is described in the applying standards, free. An example of such a standard is the NEN7250 but this standard is however not limitative.

All panels have to be installed with backplates which must be attached with a sufficient amount of SS self-tapping screws with a diameter of 6,3mm.

Installers should always provide sufficient ballast specific to individual installations. In case of doubt a specialized bureau should always be consulted.

Always provide sufficient East-West connections.

Avasco can never be held responsible when mounting articles that are not supplied by Avasco Industries are used.

The warranty conditions regarding the mounting frames of Avasco Industries are available on demand. The installation manual should be observed strictly, otherwise all guarantee agreements will lapse.

The installer is responsible for the use of the required personal protective equipment.

Avasco Industries maintains the right to edit the installation manual at any time. It’s the responsibility of the installer to follow the latest version, which is the only valid one. The latest installation manual is always available on www.avasco-solar.be or can be obtained on demand.