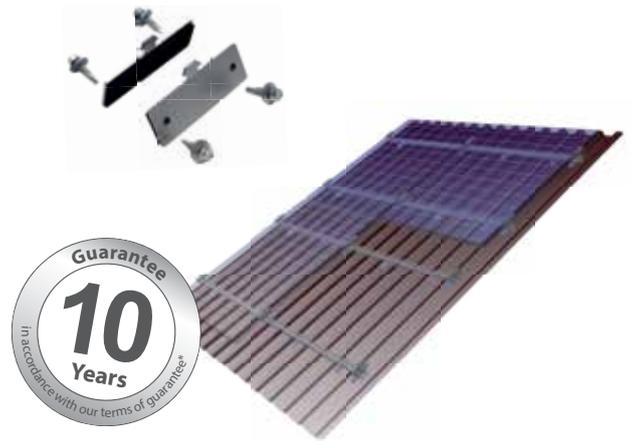


### SingleFix-Vario

Formerly VarioFix-V

The fastening system for self-supporting trapezoidal sheet metal roofs and sandwich elements - now even simpler and quicker!

- suitable for all current trapezoidal sheet metal roofs
- structurally optimized by lateral fastening
- can be fastened quickly
- validated system structural analysis
- optimized warehousing



Self-supporting trapezoidal sheet metal roofs in many cases do not allow for a connection of fastening systems to the substructure, but often have a sufficient load-bearing capacity for quick and simple direct fastening. In the majority of cases, sandwich elements provide sufficient stability in the upper deck, but do not allow for roof penetration with fastening elements as this can lead to an accumulation of condensation. **SingleFix-Vario** is an unrivalled simple and quick fastening option.

The **SingleFix-Vario** system is made up of a combination of Schletter standard rails with SingleFix-V single fastening elements and is intended for vertical module mounting. Each fastener consists of 2 small metal plates. These plates in any case have to be fastened symmetrically. Schletter **SingleFix-Vario** can be referenced in the system structural analysis. It utilizes special screws with type approval and verified fastening forces. The arrangement of fastening components and their respective approved loads can be referenced in clearly laid out tables.

#### We recommend the fastening methods listed below:

##### For trapezoidal sheet metal

In pairs at the same trapezoidal crown



In pairs at the legs of adjoining trapezoidal crowns



Individually at the outer legs of trapezoidal crowns (skipping several in between)



##### For sandwich elements

In pairs at the same trapezoidal crown



**Not allowed to use with a SingleFix-V small metal plate at the same leg side of the standing rib (crown)**

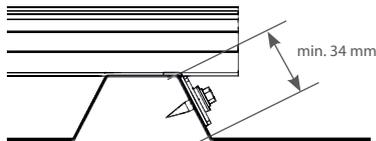
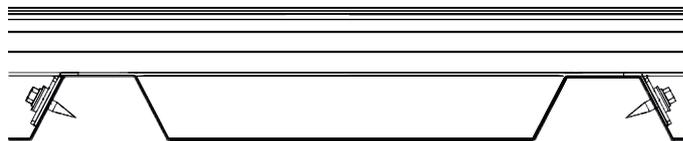
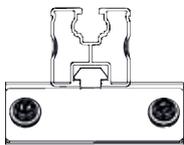


\*The terms of guarantee can be referenced at [www.schletter.de/AGB\\_en](http://www.schletter.de/AGB_en)

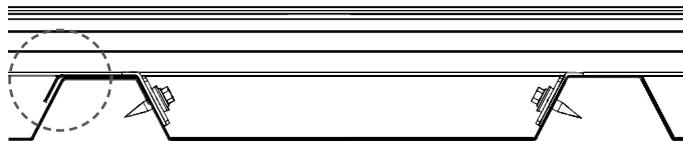
### Guidelines for assembly

The SingleFix-V elements must be able to transmit specifically defined forces so that a reliable structural analysis can be provided for the entire system. Thus, the following issues must be considered:

- When fastening the screws, the SingleFix-V fastening component has to pull the module-bearing rail onto the upper crown so that pressure loads can be transmitted. Put the self-drilling screws at the lower hole edge and fasten them - in order to maintain water tightness, the washer disc must not be flattened completely, it still has to be a little arched after fastening.
- The utmost care must be taken not to over-tighten screws (use a depth control stop!).
- Once screws are in place, they must not be removed and redeployed into the same hole.
- Steel sheeting and trapezoidal aluminium sheet metal must present a thickness of min. 0.5 mm to comply with the technical type approval for screws.
- In order to prevent surface damage to the coating of the trapezoidal sheet metal by linear thermal expansion, we recommend using individual sealing rubber parts at the crossing points of the cross beam with the trapezoidal crowns. (EPDM rubber is available as accessory item no. 973000-014, 48 mm wide, roles with a length of 10m).
- The roof must be capable of bearing the additional load of the PV plant.
- The trapezoidal sheet fastening must be able to absorb the wind suction forces.
- With sandwich components, an adequate holding force must be guaranteed between layers.
- For a better load distribution, the SingleFix-V fastening components should be distributed on several crowns.
- When arranging the rails, please make sure that the rail connectors are not positioned at the corrugation tops.
- As linear thermal expansion is to be reckoned with, it is recommendable not to use uninterrupted rail lengths of more than 10m.
- Fastening the SingleFix at joints of trapezoidal metal sheets is not recommended; above all not if the edge of the trapezoidal sheet is placed directly near the SingleFix fastening. If possible, better choose an adjacent trapezoidal crown (corrugation top) for fastening. In any such case, please make sure that the trapezoidal sheet plates at the joint area are additionally fastened and bolted at the trapezoidal crown (corrugation top). Besides, particular attention has to be paid to ensure that the roof is tight.
- Please ensure that SingleFix is mounted evenly and flush.



The mounting surface at the trapezoidal sheet must be at least 34mm high!



#### Recommendation:

Do not fasten the screws at the joint area of the trapezoidal sheet!

### Guidelines for sealing

- The screws that are included in delivery are equipped with sealing washers that prevent water entry in the SingleFix fastening drillings.
- In order to safeguard a tight sealing between the SingleFix-V and the sheet metal roof, the inner sides of the SingleFix-V are equipped with EPDM rubber seals.
- It should be noted that, in extreme conditions (wet snow), water can rise from below into the drilled holes.
- The presence of water in the drilled holes does not lead to corrosion problems with galvanized sheeting (anodized protection of edge zones).
- Water permeating the drilled holes of sandwich elements cannot penetrate the foam layer seal and therefore does not lead to problems.

### Bonding the EPDM rubber seal

- The surfaces must be dry as well as free of dust, oils, oxide layers, separating agents / adhesives and other kinds of pollutions.
- Cleaning agent: Water with neutral detergent. Use clean water, isopropanol, ethanol or acetone for rinsing. The detergent must not leave any remnants and must not affect the surface of the trapezoidal sheets.
- The ideal working temperature is between 10 and 30°C. If the temperature is lower, the roof surface should be heated locally (e.g. using a hot air blower) to ensure adequate adhesion of the glue to the metal sheet.
- Press on the rubber seal using a pressure roller (e.g. a wallpaper seam roller).

### Important information on structural analysis

- The verification of the fastening forces of the SingleFix-V in the trapezoidal sheet metal roof can usually be looked up in the general structural analysis of the Schletter system (pay regard to the special information about roof edge areas!).
- When calculating the maximum snow load, it has to be taken into account that the roof also has to bear the distributed load / basis weight of the solar plant (individual verification required in certain cases).
- Regarding wind suction forces it must be considered that the forces in the selected SingleFix-V arrangement are absorbed by the trapezoidal sheet and transmitted into the roof structure (an individual structural verification may be required). In such cases, an offset arrangement of the SingleFix-V fasteners on top of each other may be reasonable!
- In order to unburden the trapezoidal sheet, we recommend equipping the first two corrugation crowns in the edge area with fasteners.

### Component overview

<b>113009-100</b> SingleFix-V Solo pair kit (2 x SingleFix-V Solo, 4 self-tapping screws) For use with e.g. mounting rail Solo
<b>113009-104</b> SingleFix-V Solo pair kit - Fischer
<b>113009-101</b> SingleFix-V Profi pair kit (2 x SingleFix-V Profi, 4 self-tapping screws) For use with e.g. mounting rail Profi
<b>113009-105</b> SingleFix-V Profi pair kit - Fischer
<b>113009-103</b> SingleFix-V 20 pair kit (2 x SingleFix-V 20, 4 self-tapping screws) for particularly low corrugation crowns, min. 20 mm! For use with e.g. mounting rail Solo



### Technical data

<b>Material</b>	Fastening components: High-grade steel 1.4301; screws/bolts: High-grade steel, sealing strips: EPDM rubber seals
<b>Different designs</b>	Suitable for all current trapezoidal sheet metal designs and sandwich elements
<b>Planning aid</b>	Configuration and structural dimensioning with the AutoCalculator Easy and the Schletter Configurator.
<b>Structural analysis</b>	Structural analysis in accordance with current national standards (in Germany DIN EN 1991, EC1). Structural analysis attachments on the dimensioning of the number of required fastening spots, based on structural calculation. By all means, please ensure you observe the structural analysis information! The verification of the holding force of the roof to the substructure is not included in the general structural analysis attachments!
<b>Kit</b>	2 SingleFix-V Solo or Profi elements and 4 self-drilling screws

Further information at: [www.schletter.eu](http://www.schletter.eu)