

# PvMax lay-in system

## Mounting instructions



CONTENTS	Page
1 General	2
2 Foundation	3
3 Mounting of individual assembly groups	3
4 Components list	7
5 Torque specifications	9
6 Tolerances	9

## 1 General

### 1.1 Information

**Schletter PvMax3** is a high-value modular unit assembly system made of aluminium for the installation of ground-mounted solar racks. Due to the optimization and structural synchronization of the individual components, a favourable price for the complete system is achieved.

The dimensioning is designed in such a manner that continuous module rows are created simply by interconnecting individual rows with a length of 18m each. Due to these individual units, thermal tensions within the system are avoided. If the lengths of the rows are determined by the boundaries of the terrain, the rows are made up out of as many 18m-units as possible and completed by an accordingly shortened row to obtain the required complete length.

Please observe the information by the module manufacturer when choosing and fastening the modules.

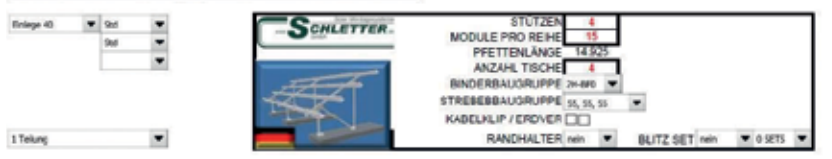
### 1.2 Planning

A general layout drawing and a screw layout plan are drawn up for each system prior to delivery. Defined measurements and the positions of individual components and connectors are shown in these drawings. The recommended torque specifications are listed in this mounting instruction under item 5.

In the general layout drawing, the components are displayed with their corresponding dimensions. A parts list is supplied with the drawing. Like this, items, quantities and item numbers can be referenced both in the delivery note and in the detail drawings.

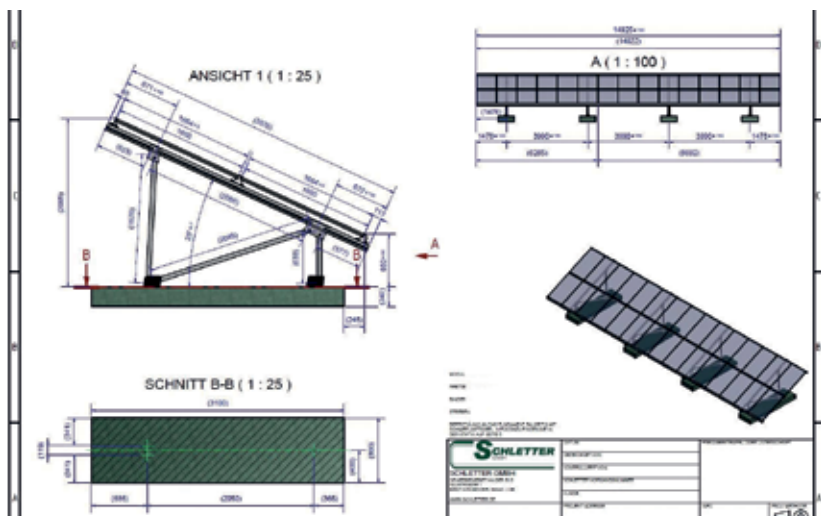
**PROJEKT PvMax-Einlegesystem Muster**

Example parts list



Benennung	Artikelnummer	Material	DIN	Länge	je Tisch	Gesamt
Binderbaugruppe 2H.RF0	146520.600	EN AL 6003			4	16
incl. Binderprofil BFD	146520.003	EN AL 6003		3538 mm	4	16
Strebenbaugruppe V55-D55-H55	147007.601	EN AL 6003			4	16
incl. Strebe 55x55 PvMax3 V	147001.003	EN AL 6003		632 mm	4	16
incl. Strebe 55x55 PvMax3 D	147001.001	EN AL 6003		2045 mm	4	16
incl. Strebe 55x55 PvMax3 H	147001.002	EN AL 6003		1576 mm	4	16
Sechskantschraube M10x25 GMB	943610-025	NORM			32	128
PFETTE Inlay 40 Loppertail	146129-001	EN AL 6003		6265 mm	1	4
PFETTE Inlay 40 Loppertail	146129-001	EN AL 6003		6660 mm	1	4
PFETTE Inlay 40 Centertail	146129-001	EN AL 6003		6265 mm	1	4
PFETTE Inlay 40 Centertail	146129-001	EN AL 6003		6660 mm	1	4
PFETTE Inlay 40 Bottomtail	146127-001	EN AL 6003		6265 mm	1	4

Example general layout drawing



## 2 Foundation

Schletter PvMax3 can basically be combined with all kinds of foundations!

Open area plants are often built on re-vegetated landfill sites or agricultural terrains of low quality with bad subsoil conditions. In such cases, a foundation on piles usually is not possible or not reasonable. Therefore, a foundation on concrete foundations with prefabricated parts or cast-in-place concrete is recommended as a standard option. This kind of foundation is almost always possible and very easy to install.

**But other kinds of foundations are basically possible!** Whether or not the subsoil is suitable for a certain type of foundation or not always has to be determined on location.

*In each and every case, make sure that all concrete foundations are properly aligned and are placed on a bed of crushed gravel. Only if all foundations are at exactly the same height, the rack can be installed properly.*

### 2.1 Pre-cast strip foundations

Generally, strip foundations are put under the supports (continuous strips parallel to the module rows are also possible). The weight of the foundations has to be dimensioned in such a manner that the wind loads are compensated only by the weight (see structural analysis program).

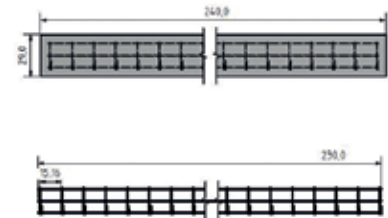


### 2.2 Dimensioning and reinforcement

The dimensioning of the foundations is carried out according to the structural analysis program (in each and every case do specify the load parameters - especially the wind loads!)


The foundations have to be reinforced by the concrete builder according to the loads that have to be considered.


Example of a reinforcement

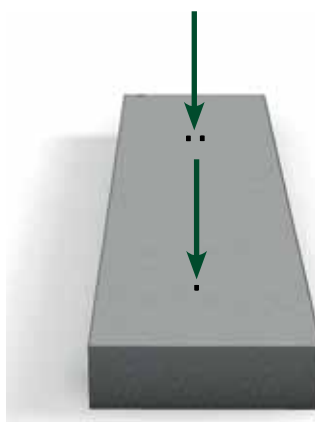


## 3 Mounting of the individual assembly groups

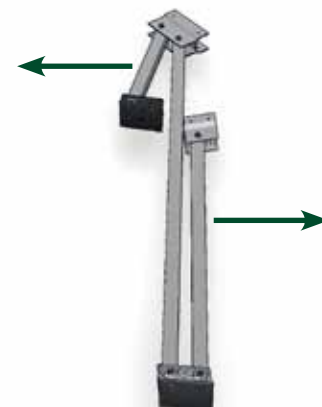
### 1. Mounting of the supports

 The selected fasteners (for example screw anchors) have to be suitable for the fastening forces that are specified in the structural analysis!  
For this purpose, an accordant structural verification by the customer has to be added to the documents!

 Please note that the required dowels are **not** included in the scope of delivery!

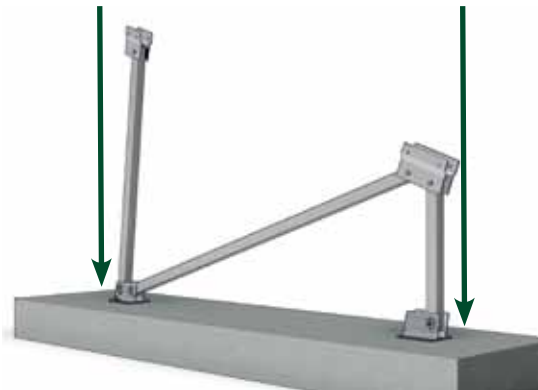


The positions of the base profiles can be looked up in the rack drawings. The fastening points must be pre-drilled and the dowels must be anchored in the foundation.



Unfold the pre-assembled support

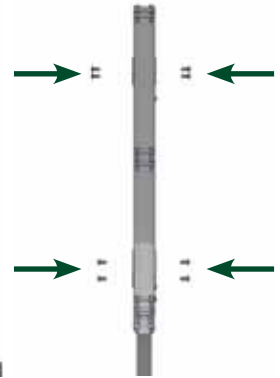
- ⚠ Make sure that all base profiles are equipped with rubber soles! These rubber soles impede direct contact between the aluminium and the concrete.



Put the base profiles of the support onto the foundation and fasten them.

## 2. Mounting of the girders

- ⚠ When mounting the girders, maintain the positions that are specified in the drawings!
- ⚠ Check if all bolted connections are fastened tightly!

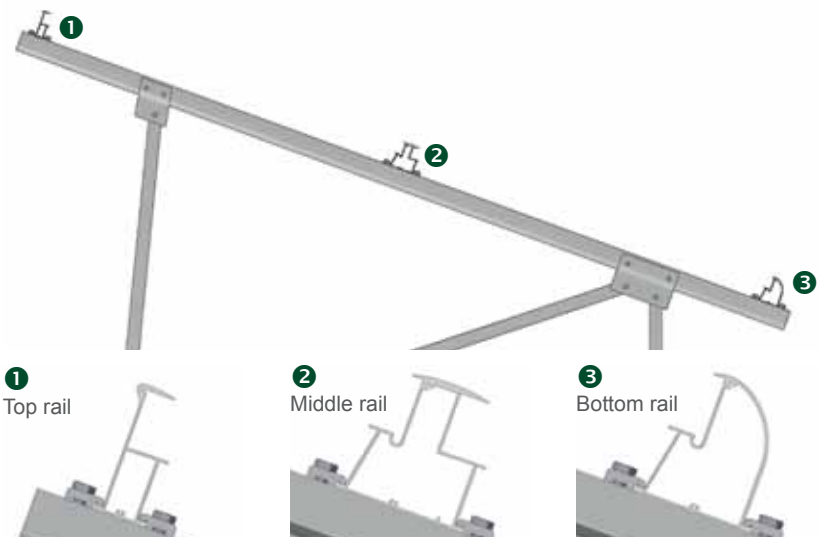


Lay the girder in the support forks and fasten it with M10x25 bolts.

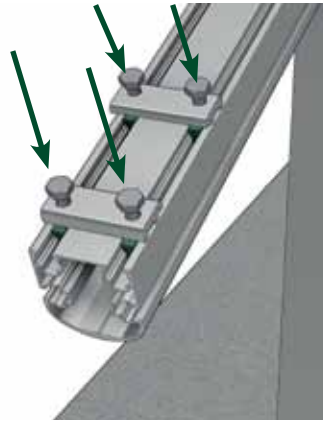
## 3. Fastening of the module-bearing rails

- ⚠ Fasten the module-bearing rails at right angle to the girder! Stick to the positions and the component names specified in the overview drawing! Due to production tolerances of the modules, the accordant values might vary slightly. As the girder profiles are always a little bit longer than ordered, a modification within the range of normal module tolerances is possible.

- ⚠ When mounting, make sure that there is the right projection (to the first support)!



Mount the module beams according to the sketch. For mounting, we recommend using a template representing the module plus the required gap of 13 mm. This gap is required so that the modules can be laid in.



Loosen the bolts of the mounting claw



Put in the module-bearing rail and fasten it. Fasten the bolts again.

#### 4. Mounting of the connector (optional)





Shift one half of the connector into the purlin and fasten it with a self-drilling screw

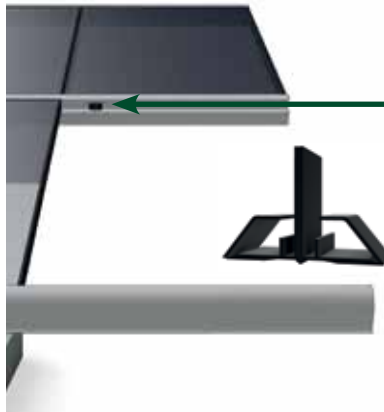


Connect the next purlin and fasten it with a self-drilling screw, too.

#### 5. Module mounting

 Verify that the modules to be deployed are suitable for "lay-in system assembly"!

 Inserting a spacer from the side between the rail and the module fills the gap above the solar module, which prevents unauthorized removal (theft prevention)



Join the top spacer to the inserted module



Join the bottom spacer to the inserted module



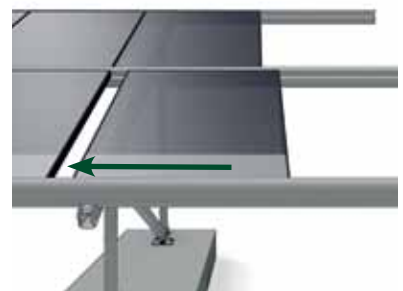
Shift the module upwards into the rail



Side view



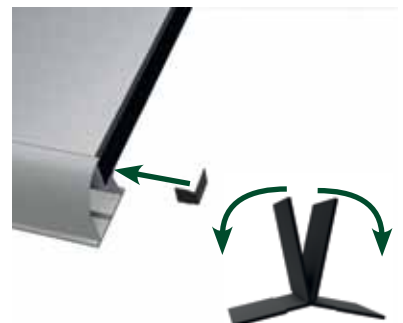
Rest the module on the lower profile and shift it sideways to the previously positioned module



Front view



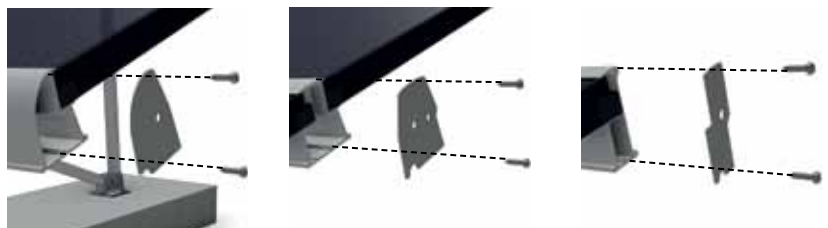
Fold down the **top** spacer in the middle and join one half to the outer module.



Fold down the **bottom** spacer in the middle and join one half to the outer module.



After being fastened, the grooved nails can only be removed with a considerable effort! (theft prevention)



Attach the cover plates using grooved nails

## 4 Components list

### Strut assembly groups

each consisting of:

000011-126  
or 000011-129

- ① 1x strut 55x55 front
- 1x strut 75x55 front

000011-127  
or 000011-130

- ② 1x strut 55x55 diagonal
- 1x strut 75x55 diagonal

000011-128  
or 000011-131

- ③ 1x strut 55x55 rear
- 1x strut 75x55 rear

147003-011

- ④ 1x base profile PvMax3 front

147003-012

- ⑤ 1x base profile PvMax3 rear

147004-001

- ⑥ 1x front hinge connector PvMax3

147004-002

- ⑦ 1x rear hinge connector PvMax3

147005-000

- ⑧ 6x base claw PvMax3

943612-080

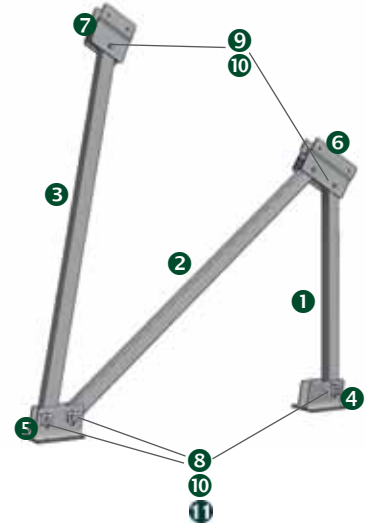
- ⑨ 3x hexagon bolt M12x80 DIN931 A2

943612-100

- ⑩ 3x hexagon bolt M12x100 DIN 931 A2

943912-012

- ⑪ 6x serrated flange nut M12 DIN6923 A4



### Girder assembly groups (pre-assembled)

each consisting of:

124500-001  
or 124501-001  
or 124502-001  
or 124503-001

- ① 1x girder BF0
- 1x girder BF1
- 1x girder BF2
- 1x girder BF3

146001-000

- ② \*x mounting claw 80mm

943610-025

- ③ \*x hexagon head bolt M10x25 DIN933 A2

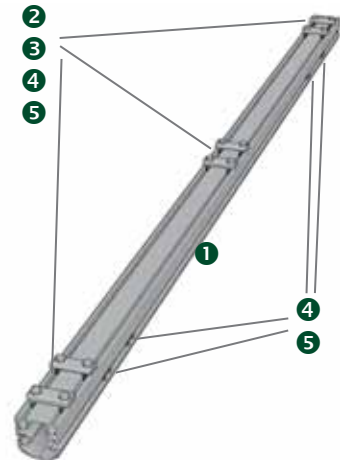
943914-010

- ④ \*x square nut M10 DIN557 A4

129010-001

- ⑤ \*x KlickIn click component for M10

\*the number of pieces depends on the girder assembly group



146520-000 Girder assembly group 2H-BF0

146522-000 Girder assembly group 2H-BF2

146530-000 Girder assembly group 3H-BF0

146532-000 Girder assembly group 3H-BF2

146540-000 Girder assembly group 4H-BF0

146542-000 Girder assembly group 4H-BF2

146550-000 Girder assembly group 5H-BF0

146552-000 Girder assembly group 5H-BF2

146650-000 Girder assembly group 6H-BF0

146652-000 Girder assembly group 6H-BF2

146521-000 Girder assembly group 2H-BF1

146523-000 Girder assembly group 2H-BF3

146531-000 Girder assembly group 3H-BF1

146533-000 Girder assembly group 3H-BF3

146541-000 Girder assembly group 4H-BF1

146543-000 Girder assembly group 4H-BF3

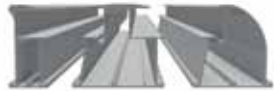


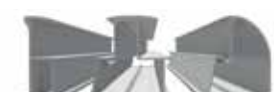
146551-000 Girder assembly group 5H-BF1

146553-000 Girder assembly group 5H-BF3

146651-000 Girder assembly group 6H-BF1

146653-000 Girder assembly group 6H-BF3

### Module-bearing rails

<b>149149-001</b>	Lay-in module-bearing rail 35 top	
<b>149148-001</b>	Lay-in module-bearing rail 35 middle	
<b>149147-001</b>	Lay-in module-bearing rail 35 bottom	
<b>149129-001</b>	Lay-in module-bearing rail 40 top	
<b>149128-001</b>	Lay-in module-bearing rail 40 middle	
<b>149127-000</b>	Lay-in module-bearing rail 40 bottom	
<b>149139-001</b>	Lay-in module-bearing rail 45 top	
<b>149138-001</b>	Lay-in module-bearing rail 45 middle	
<b>149137-001</b>	Lay-in module-bearing rail 45 bottom	
<b>149109-001</b>	Lay-in module-bearing rail 50 top	
<b>149108-001</b>	Lay-in module-bearing rail 50 middle	
<b>149107-001</b>	Lay-in module-bearing rail 50 bottom	

### Connectors (optional), suitable for all module-bearing rails

<b>149110-011</b>	Connector kit for middle and top
<b>149111-001</b>	Bottom connector kit



### Auxiliary equipment / accessories

<b>964000-176</b>	Color: Zinc Dust Silver-Grey Silky Luster
-------------------	---

<b>149004-001</b>	Module spacer top
<b>149004-000</b>	Module spacer bottom



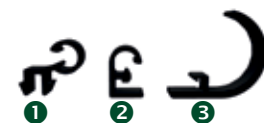
<b>149020-002</b>	Covering for lay-in rail 35 top
<b>149020-003</b>	Covering for lay-in rail 35 middle
<b>149020-001</b>	Covering for lay-in rail 35 bottom
<b>149001-002</b>	Covering for lay-in rail 40 top
<b>149001-003</b>	Covering for lay-in rail 40 middle
<b>149001-001</b>	Covering for lay-in rail 40 bottom
<b>149008-002</b>	Covering for lay-in rail 45 top
<b>149008-003</b>	Covering for lay-in rail 45 middle
<b>149008-001</b>	Covering for lay-in rail 45 bottom
<b>149000-001</b>	Covering for lay-in rail 50 top
<b>149000-003</b>	Covering for lay-in rail 50 middle
<b>149000-002</b>	Covering for lay-in rail 50 bottom



Coverings

<b>943000-329</b>	Grooved nails for coverings
-------------------	-----------------------------




<b>129012-010</b>	① Plastic clip B
<b>129012-002</b>	② Plastic clip P
<b>129012-001</b>	③ Plastic clip Q



<b>128014-000</b>	Interior cable duct, pre-assembled
<b>128014-001</b>	Exterior left cable duct, pre-assembled
<b>128014-002</b>	Exterior right cable duct, pre-assembled



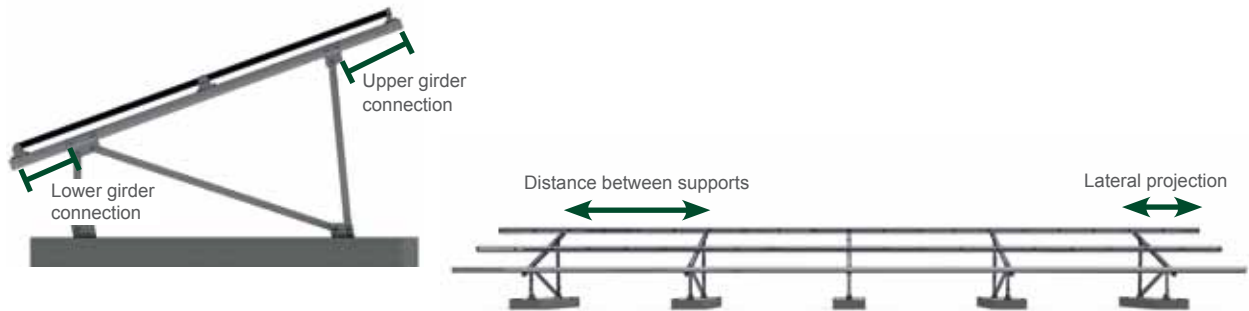
### 5 Torque specifications

Picture	Name	Tightening torque (MA-Nm)
	Hexagon head bolt DIN933 M10x25 Square nut DIN557 M10 KlickIn click component M10	33 Nm
	Hexagon head bolt DIN931 M12x100 A2 Flange nut DIN6923 M10 A4	56 Nm
	Hexagon head bolt DIN931 M12x80 A2 Flange nut DIN6923 M10 A4	56 Nm

When checking the prestress of the bolts, it has to be considered that constraints and frictional forces can lead to a loss of clamping force. This is taken into account in the tightening torque specifications. When tested by trying to unscrew the nut, it must not loosen when 50% of the specified torque is applied.

### 6 Tolerances

Schletter mounting racks for ground-mounted solar plants are always custom-dimensioned to withstand the wind and snow loads at the respective location. In the interest of economic efficiency, the maximum load-bearing capacity of the individual components is generally exploited. To achieve this, however, the racks must be mounted with the utmost precision. Significant deviations from the mounting plans can lead to overstressing. Adherence to the specified tolerances is therefore essential to the structural safety.



Distance between supports	± 150 mm
Lateral projection of purlins	± 100 mm
Lower girder connection	± 100 mm
Upper girder connection	± 100 mm

**If there are any deviations, Schletter must be informed immediately!**