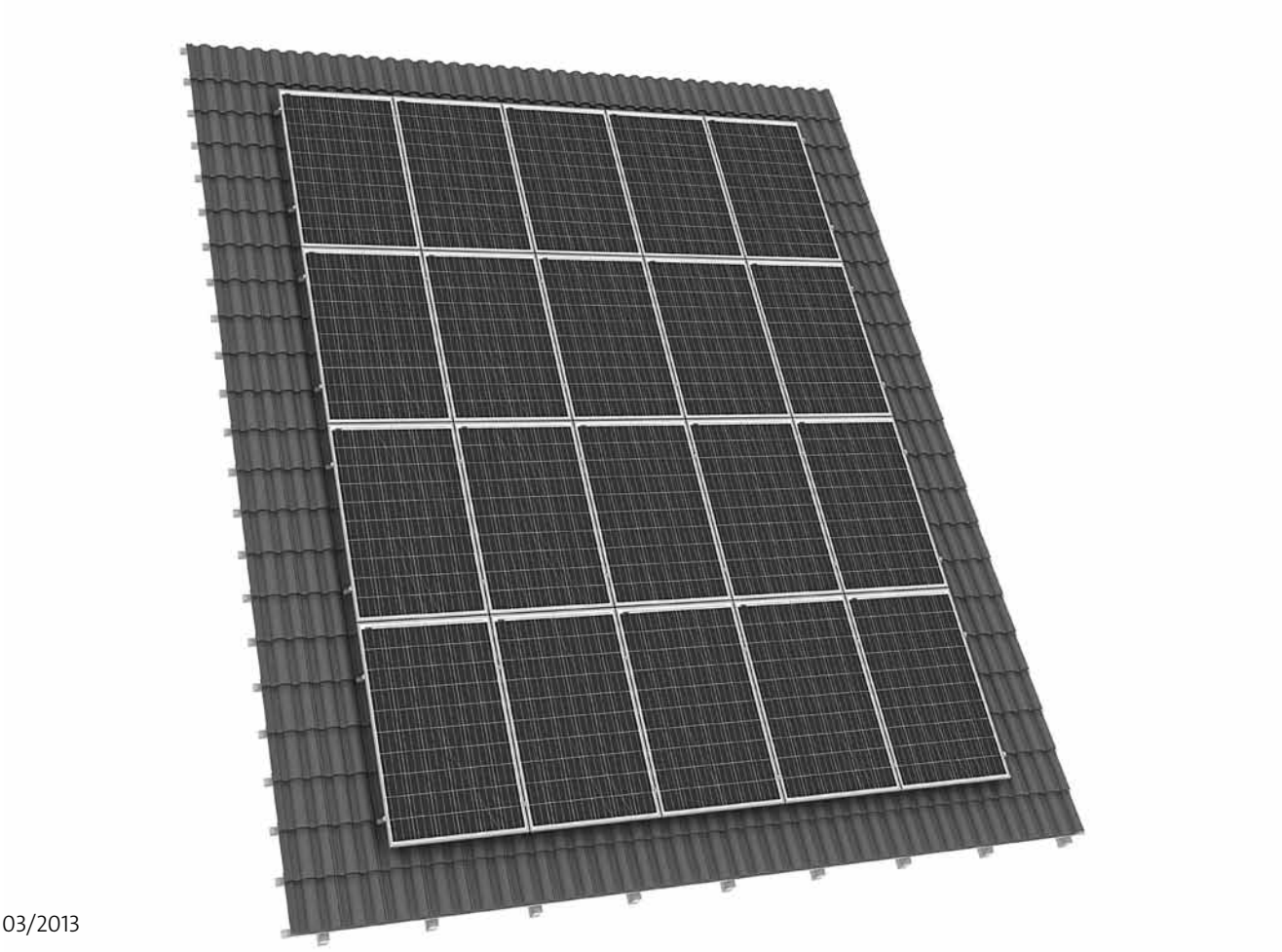
SolarWorld Kit easy

Standardized solar kit for installation on pitched roofs.
Planning and Implementation.

Translation of the original instruction manual for installers



03/2013

SOLARWORLD

We turn sunlight into power.

www.solarworld.com

Proven quality – simply clever

The SolarWorld Kit easy is a high quality product from the SolarWorld AG product line. The SolarWorld Kit easy includes all components needed for establishing and operating a solar power system: High quality SolarWorld solar modules, your choice of inverters, assembly system, wires and accessories.

The following information explains the proper arrangement of the SolarWorld Kit easy, including the Sunfix plus pitched roof assembly system based on an example. It is intended to help you install the complete system and avoid any problems.

Please note: Based on tested dimension tables, you are provided a list of permissible construction sites suitable for the SolarWorld Kit easy. Specific structural features are not considered. In this case, a custom-designed Solar-World kit must be used.

The compact and high-quality packaging of the SolarWorld Kit easy guarantees quick and hassle-free delivery all the way to the customer's construction site. The following description provides a step-by-step guide for optimal and safe unloading of the kit.

Date: 03/2013

Table of Contents

A Safety information

A1 Safety notice classification

Read the entire instruction sheet and observe the safety information!

Warning symbol, signal word	Warning levels
 **DANGER!**	**Warns of immediate risk of death.**
 **WARNING!**	**Warns of possible risk of death and/or severe injury.**
 **PRUDENCE!**	**Warns of possible personal injury.**
CAUTION	**Warns of possible property damage without possibility of injury.**

Use of additional notice symbols	
	**Indicates additional important information.**
	**Observe applicable accident prevention regulations during installation.**
	**Do not stand or walk on solar modules.**

- Ensure that the SolarWorld Kit easy is used only as intended. Observe local standards, building codes and accident prevention regulations during installation and commissioning. Safety information for other system components must also be followed.
- Noncompliance with the following instructions may result in electric shock, fire and/or severe injury.
- Keep this instruction sheet in a safe place.

A2 Safety information

DANGER!

Risk of fatal electric shock

- Solar modules generate power as soon as they are exposed to light. The voltage of a single solar module is less than 50 V direct current (DC). When several solar modules are connected in series, the voltages accumulate and can be dangerously high. When several solar modules are connected in parallel, the currents are cumulative. Although touch protection is provided in the form of the fully insulated plug contacts, the following points must be observed when handling the solar modules to avoid risk of fire, sparking and fatal electric shock:
- Do not install solar modules and lines with wet sockets and plugs!
- All work on the lines must be carried out with extreme caution!
- High contact voltages can occur in inverters even when disconnected!
- Caution is advised in all work performed on the inverter and lines!

DANGER!

Risk of fatal arcing

- Solar modules generate direct current (DC) when exposed to light. Breaking a connected string of modules (e.g., when disconnecting the DC line from the inverter under load) may result in dangerous arcing. Observe the following:
- Never disconnect the solar generator from the inverter while the inverter is still connected to the power grid.
- Ensure that the wire connections are in perfect condition (no cracking, no soiling)!

WARNING!

Risk of falling

- Risk of falling when working on the roof and when climbing up and down. Observe accident prevention regulations and use suitable fall protection equipment under all circumstances.

WARNING!

Flammable materials

- Solar modules must not be operated in the vicinity of equipment or spaces in which flammable gases or dust occur or can collect.

PRUDENCE!

Risk of hand injury

- Hands may be crushed during frame and solar module installation.
- Work must be carried out by trained personnel only.
- Wear protective gloves!

PRUDENCE!

Beware of falling objects

- Tools, mounting materials or solar modules may fall from the roof during installation and injure persons below.
- Block off the area at risk on the ground before starting installation work and warn persons in the vicinity.

A3 Comments regarding PV plant design

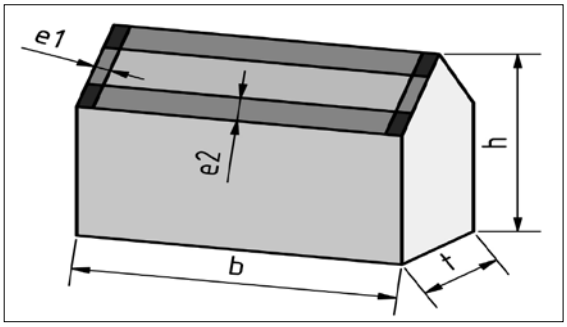
- Ensure adequate load capacity (based on dimensions, condition and suitable material properties) of the roof substructure, support structure and other affected layers (such as an insulation layer).
- Observe the minimum sections of the wood substructure indicated on the instruction sheet. If the existing wood substructure falls short of these values, it must be properly augmented to produce a cross-section equal to a solid cross section with the required dimensions. In case of doubt, the new, supplemented wood must exhibit the required minimum dimensions.
- Make sure that rainwater runoff is not impeded.
- Consider physical aspects of the structure (e.g., possible water condensation if insulation is penetrated).
- In case of doubt, consult an expert (e.g. a structural engineer, expert).
- Protect wires installed outdoors from weather, UV light and mechanical damage using suitable precautions (such as by using UV-resistant plastic tubes or wire conduits).
- For PV plants running parallel to the roof, the solar modules should be assembled with at least 20 cm spacing from the roof edge for structural reasons. Solar modules must never extend beyond the roof edge!
- According to EN 1991 (Eurocode 1), increased wind loads must be anticipated at the roof edges due to peaks in wind suction, which can raise the mounting components in these areas.

Perimeter areas with increased wind loads according to EN 1991 (Eurocode 1)

According to EN 1991 (Eurocode 1), increased wind loads must be expected in perimeter areas. These loads must be taken into account during PV plant design in addition to snow and design loads. Perimeter areas are dimensioned as follows:

e1 = t/10 or h/5, the smaller value is decisive

e2 = b/10 or h/5, the smaller value is decisive



Fire protection
Local fire protection regulations are to be observed during planning and arrangement.

Information about fire break and party walls
Different requirements under planning and building laws apply to the design of PV systems depending on building class or type and use of special purpose buildings.

In general, the following applies:
1. The functionality of fire break and party walls must not be impaired.
2. PV modules must not be installed over fire break and party walls.
3. A sufficient gap is to be maintained between PV systems and fire break and party walls. This gap can be determined by an expert.

A4 Comments regarding installation

- Observe applicable accident prevention regulations during installation.
- All persons who are on the roof of a building at least 3 m tall must use fall protection.
- Use barriers to protect persons on the ground below from falling debris.
- Also obey the safety instructions for all other system components (e.g., inverters and solar modules).
- The PV plant must be connected to the public power grid by a professional electrician only.
- Observe the instruction sheet for solar modules and inverters included in the delivery as well as the mounting and wiring diagram.
- Ensure that all screw connections are securely tightened.

B System description

Proper and improper use

Proper use
The SolarWorld Kit easy includes the Sunfix plus assembly system used to affix solar power modules onto roofs of standard construction and height.

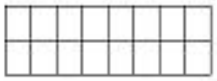
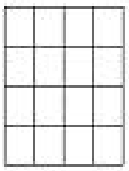
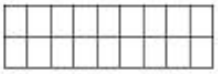
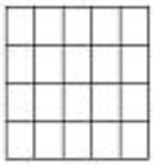
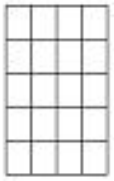
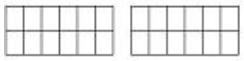
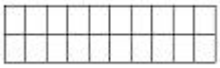
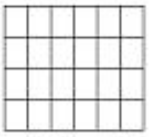
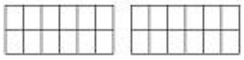
Proper use includes observing the instruction sheet and compliance with maintenance, repair and cleaning instructions. The manufacturer does not accept liability for damage resulting from failure to adhere to the instruction sheet.

Improper use
This list does not include all conceivable types of improper use and thus does not make any claim of completeness. The information supplied is intended merely to provide a sense of what constitutes improper use.

- The instructions in this installation manual were disregarded.
- The assembly system was:
  - Not used properly to secure the solar power modules,
  - Not installed according to the framework conditions of this instruction sheet (such as for attachment to a facade)
  - Improperly assembled,
  - Maintained improperly or not at all,
  - Modified,
  - Exposed to improper design loads.
- Repairs were improperly carried out.
- The PV plant was combined with components from other manufacturers.

B1 Kit dimensions

The SolarWorld Kit easy is available in three different sizes, including 16, 20 and 24 solar modules. There are several arrangement options for each of these sizes.

16 solar modules (4 kWp)				
Arrangement option	2 x 8 solar modules	4 x 4 solar modules		
Minimum roof area	3.9 x 8.5 m	7.3 x 4.5 m		
				
20 solar modules (5 kWp)				
Arrangement option	2 x 10 solar modules	4 x 5 solar modules	5 x 4 solar modules	2 x 5 + 2 x 5 solar modules
Minimum roof area	3.9 x 10.5 m	7.3 x 5.5 m	8.9 x 4.5 m	3.8 x 5.5 m + 3.8 x 5.5 m
				
24 solar modules (6 kWp)				
Arrangement option	2 x 12 solar modules	3 x 8 solar modules	4 x 6 solar modules	2 x 6 + 2 x 6 solar modules
Minimum roof area	3.9 x 12.6 m	5.5 x 8.5 m	7.3 x 6.5 m	3.9 x 6.5 m + 3.9 x 6.5 m
				

B2 Technical overview

The SolarWorld Kit easy is available in three different sizes.

The SolarWorld Kit easy includes the Sunfix plus assembly system from SolarWorld AG in a single-layer design. The assembly system is a flexible support structure for installing solar power modules on pitched roofs parallel to the roof line. The kit is assembled so that the assembly options described in B1 can be realized under various framework conditions.

In addition to this instruction sheet, you can visit us at www.solarworld.com and download the document "Installation information". There you will find the most important documents for all kit sizes and arrangement options needed for installation and commissioning: Frame diagram, DC diagram and potential equalization diagram.

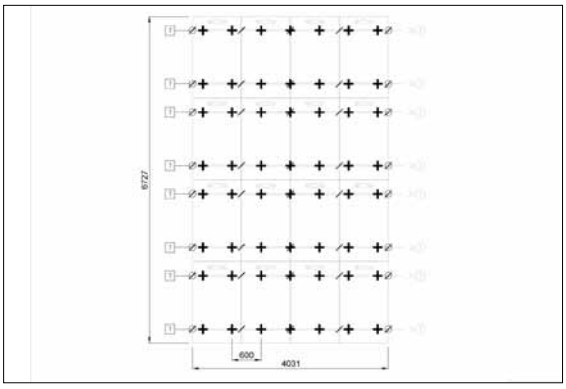


Fig. B 2-1 Sample frame diagram for 4x4 arrangement option

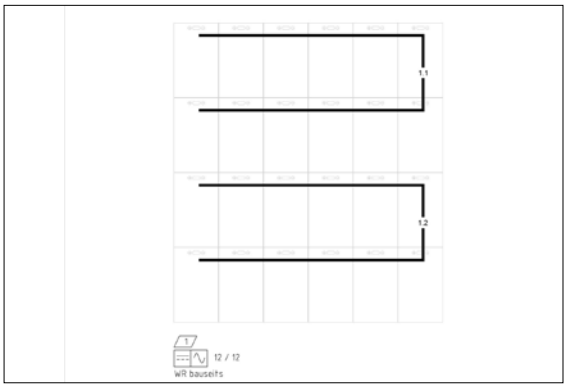


Fig. B 2-2 Sample DC wiring diagram for 4x6 arrangement option

B3 Location conditions

General boundary conditions

Roof type	Rooftop cover	Rafter spacing	Roof pitch	Roof battens
Pitched roof	Tile	60 to 80 cm	15° to 50°	24 and 30 mm

SolarWorld Kit easy can be used in areas with the following wind and snow loads according to EN 1991:

Wind load kN/m²	Snow load kN/m² (distance between rafters: 80 cm)	Snow load kN/m² (distance between rafters: 60 cm)
0,60	1,75	2,45
0,80	1,60	2,35
1,00	1,40	2,25
1,05	1,30	2,15
1,20	Not possible	2,00

B4 System arrangement

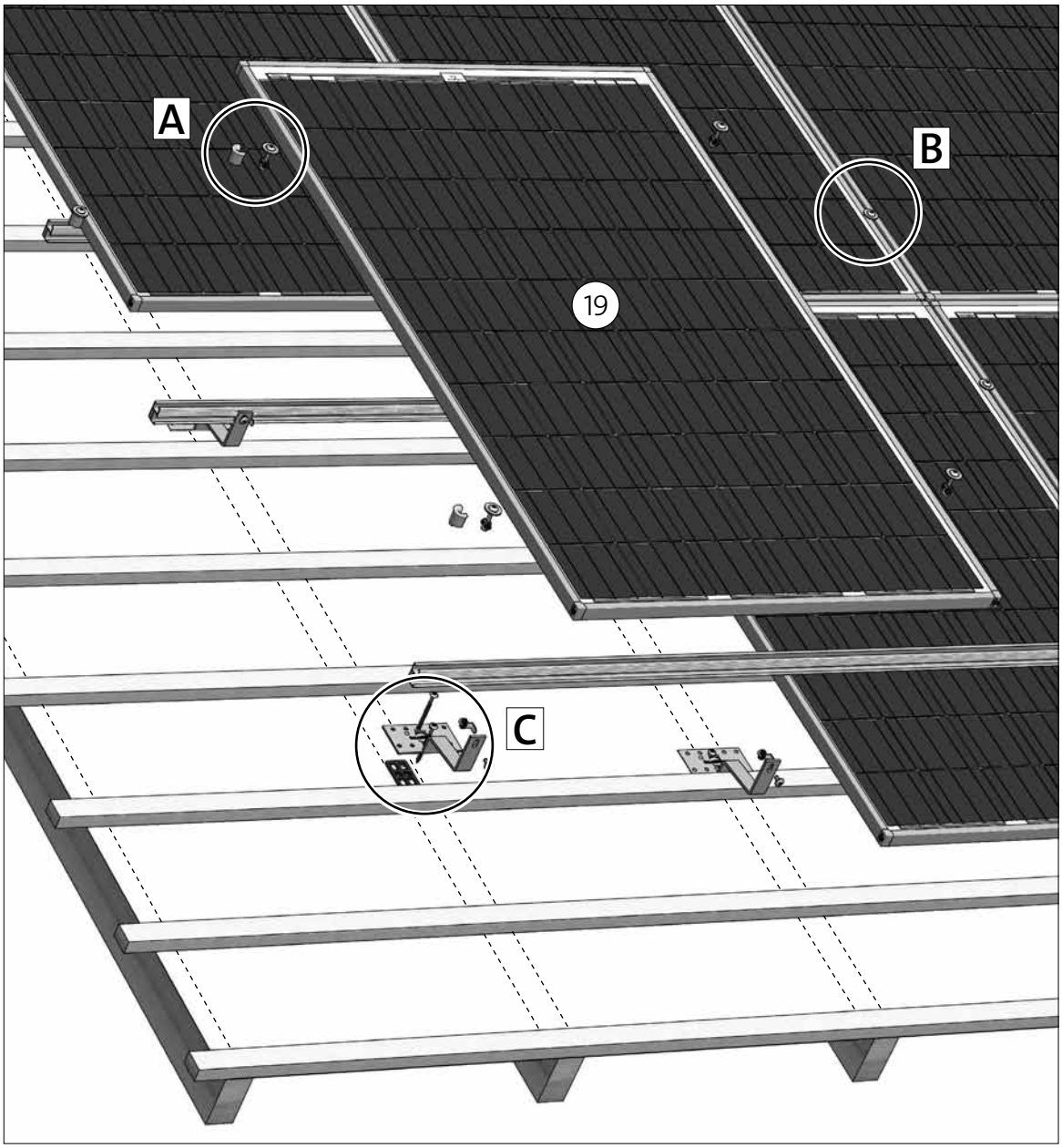


Fig. B 4-1

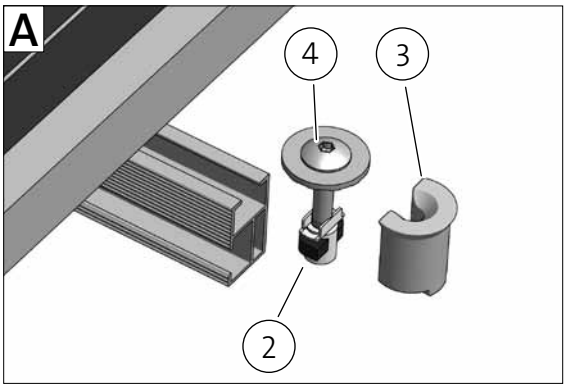


Fig. B 4-2 Module clamping edge

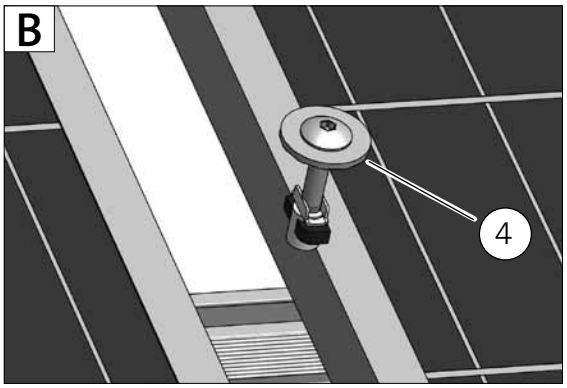


Fig. B 4-3 Center module clamping

Component list of the SolarWorld Kit easy incl. Sunfix plus			Pieces		
			16 solar modules	20 solar modules	24 solar modules
①	Supporting profile 2080 mm	TD2080	16	20	24
②	Fastener set yellow (slot nut)	SA0173	60	78	94
③	End piece	SA0177	17	21	17
④	Module clamping	SA0192	41	52	58
⑤	Roof hook	SD0027	56	72	88
⑥	Adapter plate medium roof hook	SD0064	56	72	88
⑦	Profile connector	SK0135	13	17	21
⑧	M8x16 screw	SK0145	60	78	94
⑨	Universal profile connector	SK0148	13	17	21
⑩	Earthing clamp	SK0372	4	5	4
⑪	M8x100 wafer-head screw	SK5215	116	150	182
⑫	M8x24 screw	SK0147	60	78	94
⑬	M8 flange nut	SK5012	60	78	94
⑭	Flange plate for add. adjustability	SA0226	56	72	88
⑮	Profile end cover	SA0595	16	20	16
⑯	Suncable	SK5236	60	120	120
⑰	MC4 plug	SA0139	2	4	4
⑱	MC4 socket	SA0143	2	4	4
⑲	Solar module		16	20	24
⑳	Inverter		1	1	1

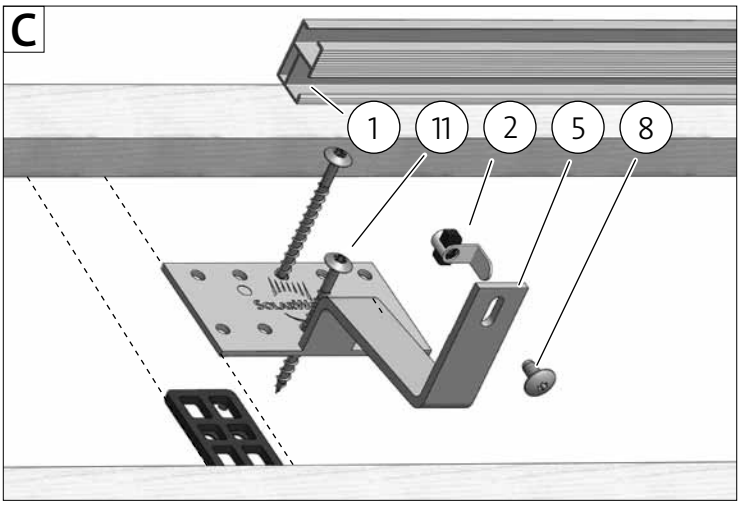


Fig. B 4-4 Fastening to roof

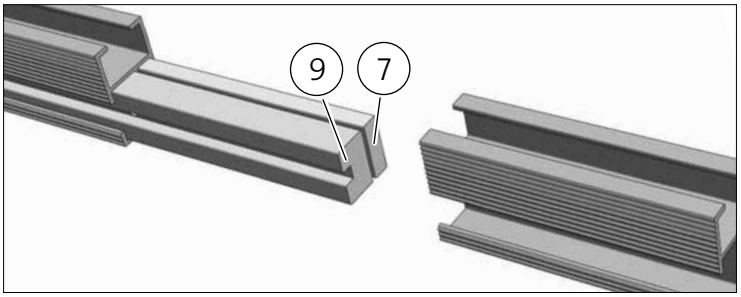
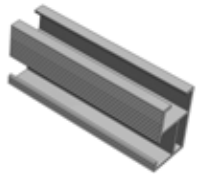
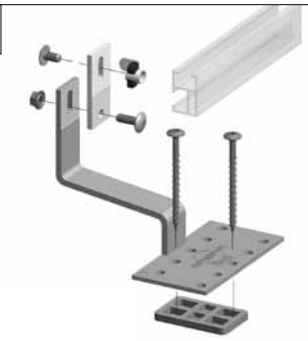
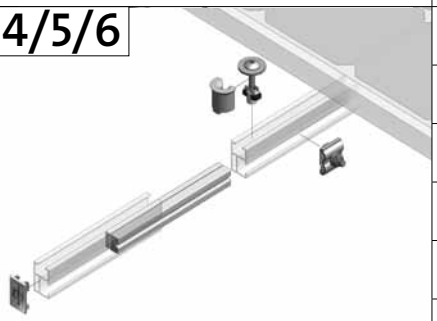
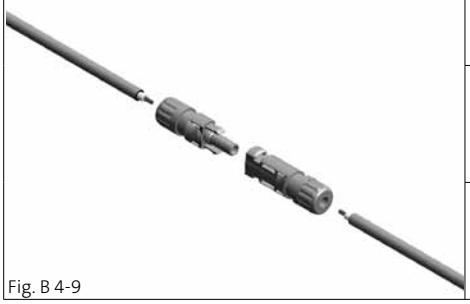


Fig. B 4-5 Profile connector

SolarWorld Kit easy partial package list

A1  Fig. B 4-6	**Ext. No.**	**Description**	**Pieces**		
	TD2080	**Supporting profile 2080 mm**	**4**		
C1/2  Fig. B 4-7	**SA0173**	**Fastener set yellow (slot nut)**	**13**	**8**	
	SD0027	**Roof hook Medium 0-24**	**12**	**8**	
	SK0145	**Screw similar to DIN 603 M8x16**	**13**	**8**	
	SK5215	**8x100 wafer-head screw**	**25**	**16**	
	SK0147	**Screw similar to DIN 603 M8x24**	**13**	**8**	
	SK5012	**M8 A2 flange nut**	**13**	**8**	
	SA0226	**Flange plate for add. adjustability**	**12**	**8**	
	SD0064	**Adapter plate medium roof hook**	**12**	**8**	
E4/5/6  Fig. B 4-8	**SA0177**	**Edge end piece 30.5 mm**	**17**	**21**	**17**
	SA0192	**Module clamping middle 31 mm**	**41**	**52**	**58**
	SK0135	**Profile connector 1**	**13**	**17**	**21**
	SK0148	**Universal profile connector**	**13**	**17**	**21**
	SK0372	**Universal earthing clamp**	**4**	**5**	**4**
	SA0595	**End cap for Fix Plus 1 frames**	**16**	**20**	**16**
G2/3  Fig. B 4-9	**SK5236**	**Suncable 1x6 PV1-F**	**60**	**120**	
	SA0139	**MC4 plug type 4/6II**	**2**	**4**	
	SA0143	**MC4 plug type 4/6II**	**2**	**4**	

SolarWorld Kit easy package list

Box	A1	C1	C2	E4	E5	E6	G2	G3
16 solar modules	4	4	1	1			1	
20 solar modules	5	6			1			1
24 solar modules	6	6	2			1		1

B5 Unpacking instructions

Numbers (❶ to ❿) are printed on the packing tapes, which are to be cut open sequentially in order to ensure safe unloading.

❶ Remove mounting profiles

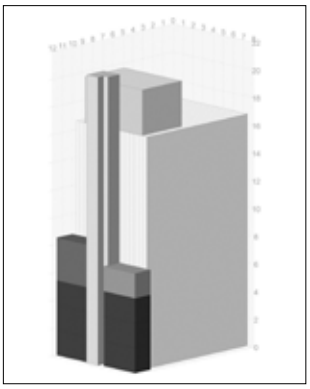


Fig. B 5-1

❷ Remove boxes holding small parts

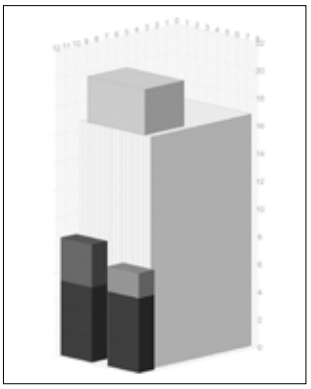


Fig. B 5-2

❸ Unload inverter

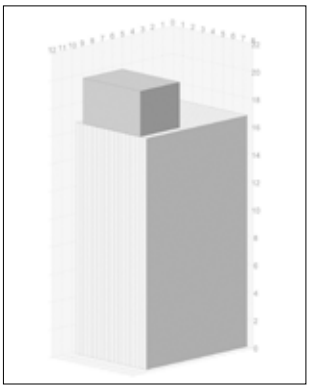


Fig. B 5-3

❹ to ❿ Remove the 4-count solar module packages one by one

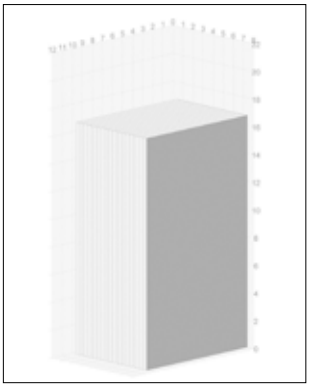


Fig. B 5-4

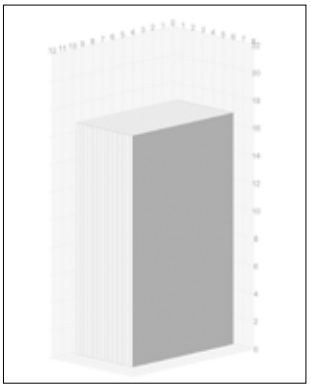


Fig. B 5-5

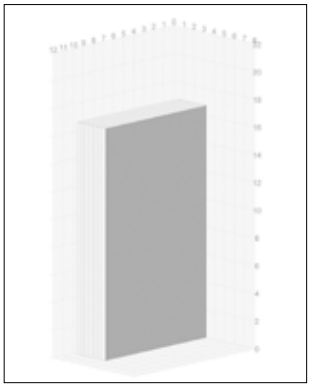


Fig. B 5-6

CAUTION!

- The final eight solar modules are not positioned securely on the pallet. Secure using a second person!

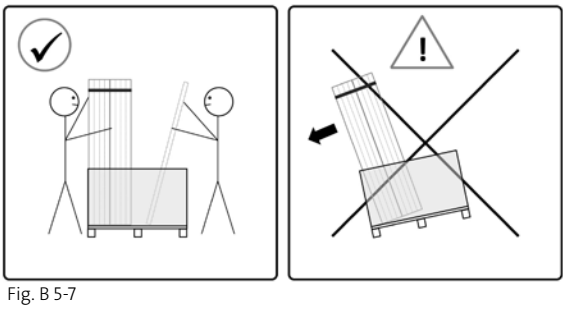


Fig. B 5-7

B6 Supporting profiles

The Sunfix plus assembly system is used as a single-layer subframe in the SolarWorld Kit easy.

The "flange plate for additional adjustability" can be used if the substructure is uneven.

- The distance between supporting profiles under a row of solar modules is set at 1100 mm. This can vary according to the solar module instructions.

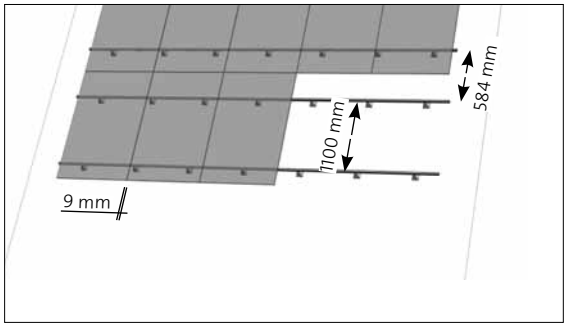


Fig. B 6-1 Profile distances

The individual frames are joined to one another lengthwise using profile connectors. By default, the narrow profile connector is inserted in the side groove.

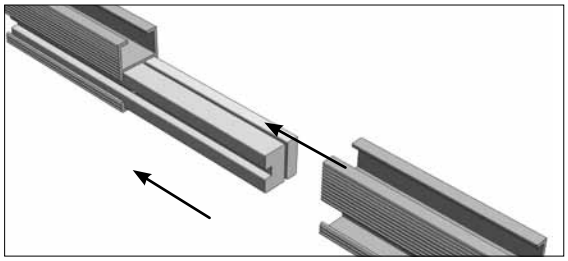


Fig. B 6-2 Profile connector 1 and 2, side assembly

According to the frame diagram, each profile requires at least 2 fasteners to the roof construction.

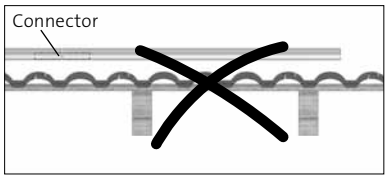


Fig. B 6-3 Detail 1
Frames without direct fastening not possible!

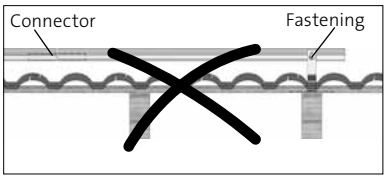


Fig. B 6-3 Detail 2
Frames with 1 fastener - not possible!

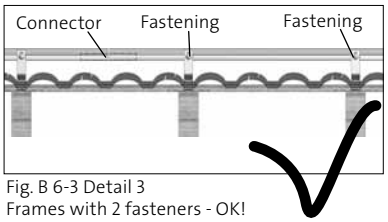


Fig. B 6-3 Detail 3
Frames with 2 fasteners - OK!

B7 Screw connections

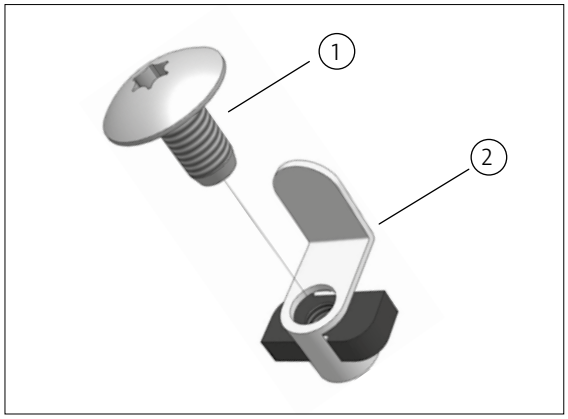


Fig. B 7-1

The connections between mounting parts (such as roof hook, angle flange, etc.) and the supporting profiles and between the supporting profiles are screwed connections with M8 screws and slot nuts with plastic tabs.

① M8x16mm screw with T40 driver

② Fastener set yellow (slot nut with yellow plastic tab)

Assembly:

1. Insert fastener set yellow.

2. Turn the assembly tool 90° using the plastic tab.

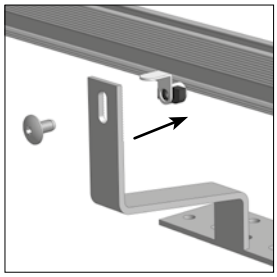


Fig. B 7-2

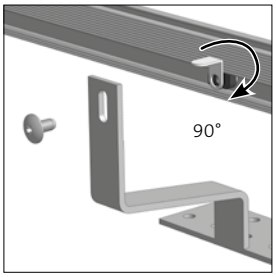


Fig. B 7-3

3. Position the fastener set yellow on the mounting parts using the plastic tab.

4. Screw in and tighten the M8 screw.

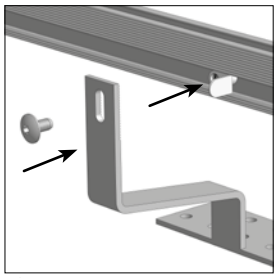


Fig. B 7-4

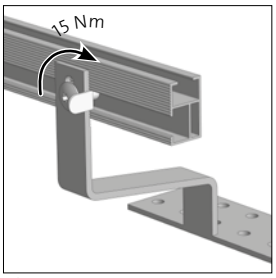


Fig. B 7-5

☑ 15 Nm torque

B8 Module clamping

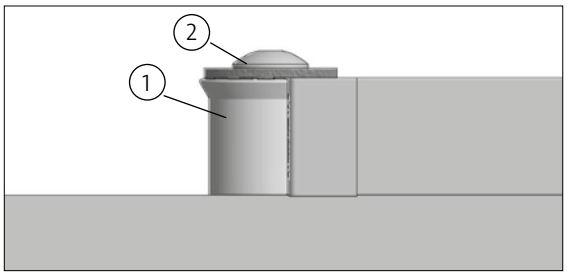


Fig. B 8-1 Module clamping edge

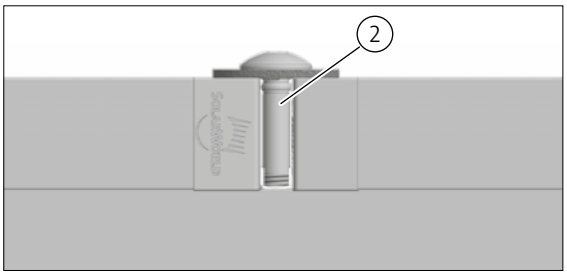


Fig. B 8-2 Inside module clamping

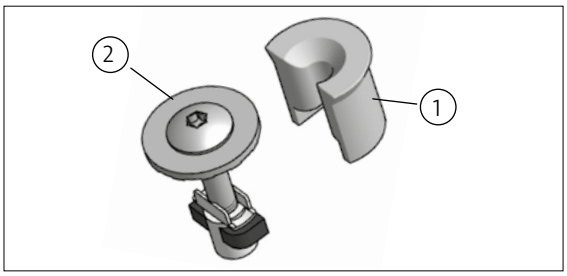


Fig. B 8-3 Module clamping

Solar modules are fastened by clamping. A torque wrench is recommended to ensure the required force.

- Firmly tightened stainless steel screws may be impossible to remove without destroying them. Carefully align and position the solar modules exactly before tightening the screws using the indicated torque!
- Spot-check the screws annually for required torque!
- Torque M_A = **15 Nm**
  Driver for module clamping: T40

① End piece
② Clamp element

End-clamp mounting

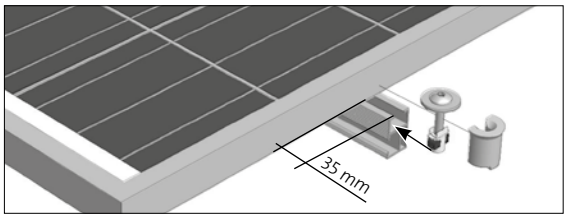


Fig. B 8-4 Slide on module clamping

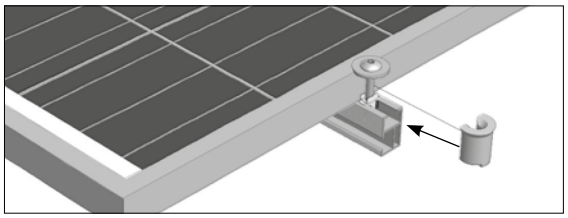


Fig. B 8-5 Slide on end piece

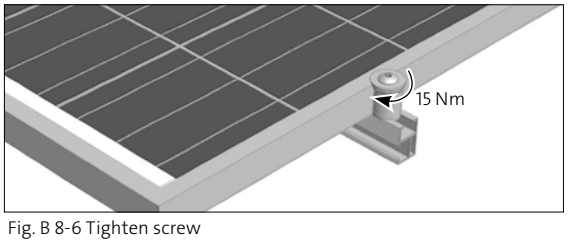


Fig. B 8-6 Tighten screw

Mid-clamp mounting

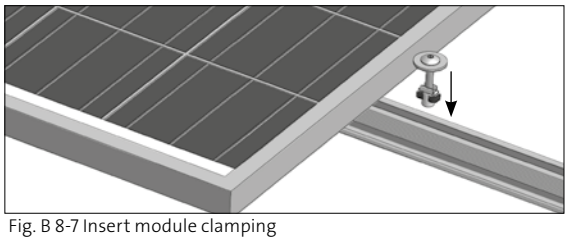


Fig. B 8-7 Insert module clamping

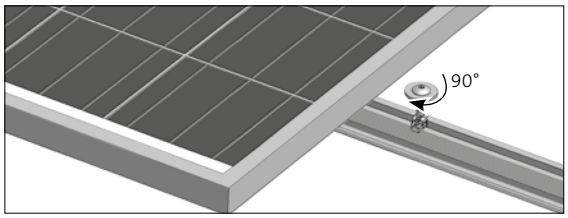


Fig. B 8-8 Turning module clamping

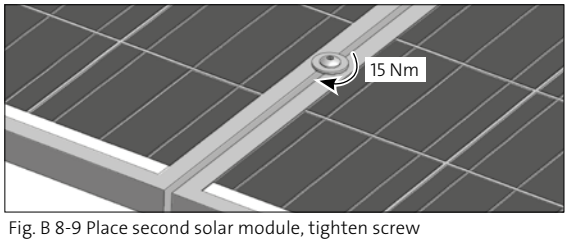


Fig. B 8-9 Place second solar module, tighten screw

B9 Roof hook mounting part

The roof hook fastener set is suitable for most common types of roof tiles, such as Frankfurt pan tile, interlocking tile, Taunus pan tile, etc.

① Supporting profile
② Screw similar to DIN 603 M8x16
③ Fastener set yellow
④ M8 A2 flange nut
⑤ Screw similar to DIN 603 M8x24
⑥ Flange plate for add. adjustability
⑦ Roof hook
⑧ Wafer-head screw
⑨ Adapter plate medium roof hook
⑩ Rafters
⑪ Counter battens
⑫ Roof battens

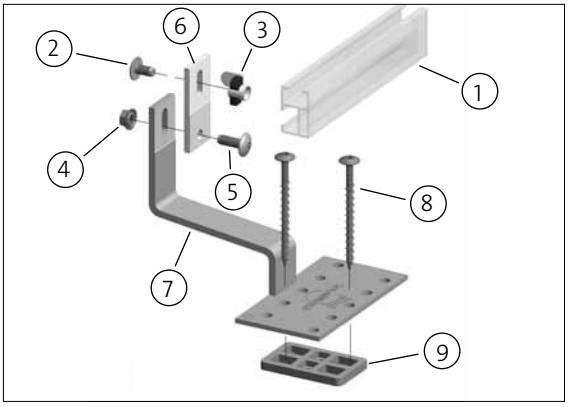


Fig. B 9.1-1 Roof hook 0°

At maximum load, the roof hook positions itself directly on the rooftop cover. In the unloaded state, the distance between the roof hook and tiles must be ≥ 5 mm.

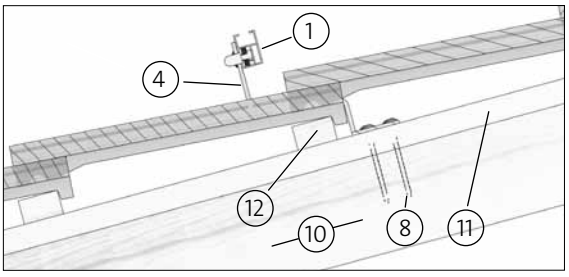


Fig. B 9.1-2

Roof hook technical data

Possible roof batten dimensions	24x48mm ("short") 30x50mm ("standard") For 30 mm batten cross-sections, the base plate of the roof hook must be underlaid using the enclosed adapter plate.
Fastening to wood substructure	8x100mm wafer-head screw (standard)
Req. embedding depth of wafer-head screws in the wood substructure	60 mm
Minimum wood rafter dimensions w x h	60x100mm (8x100mm wafer-head screws)
Fastening angle to frame	0° to (see Fig.)
Types	MEDIUM (height adjustable 14 mm)
Driver for wafer-head screw	T40

Assembly:

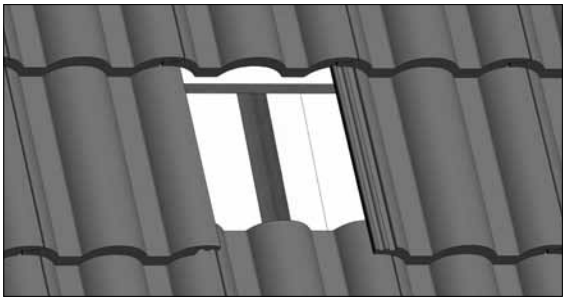


Fig. B 9.1-3

1. Remove tile above hook location

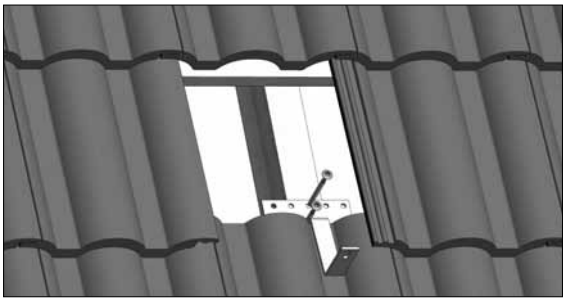


Fig. B 9.1-4

2. Position arm of roof hook at the bottom of the tile space and fasten to rafter with 2 screws. A space ≥ 5 mm must be left between tile and hook. In the case of 30 mm battens, the base plate must be underlaid using the enclosed adapter plate.

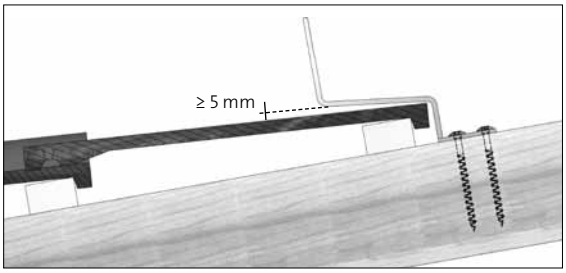


Fig. B 9.1-5

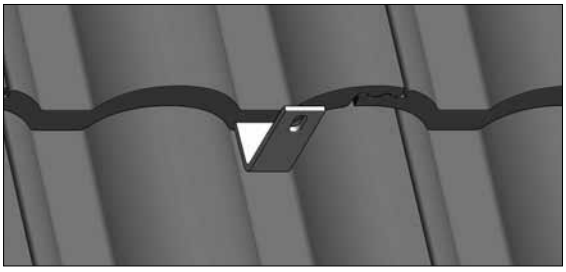


Fig. B 9.1-6

3. Grind out back of tile and replace onto roof. With interlocking tiles, the tile below must also be recessed.

B10 Equipotential bonding/grounding

Professional grounding is the responsibility of the installation company.

No exterior lightning protection
Functional grounding recommended for solar power module frame and jig. Connect all electrically conductive parts to one another by suitable means and connect them to the main grounding rail (equipotential bonding strip) using at least 6 mm² (copper).

Exterior lightning protection present
PV module frame and jig must be included in the protection concept for direct lighting strikes. Consult a lightning protection professional if needed.

The connecting terminal for bonding included with each PV plant enables internal equipotential bonding within the system and frame technology. The terminals are connected with an 8 mm aluminum wire, for example. With this terminal, the system can be connected to a grounding rail or a lightning protection system. The equipotential bonding connection must be noted in the system documentation and functionality tested prior to commissioning of the PV plant.

Equipotential bonding between anodized module frame and system and frame technology is ensured through use of module clamping. Functionality must be tested and documented prior to commissioning.

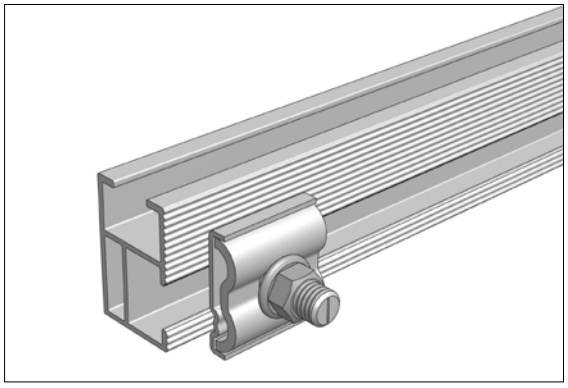


Fig. B 10-1 Connection of equipotential bonding/connection terminal

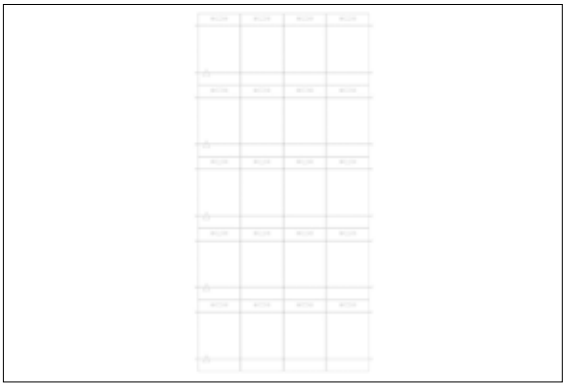


Fig. B 10-2 Sample equipotential bonding for 5x4 arrangement option

C Mounting example

The installation of a 1-layer Sunfix plus assembly system on a clay tile roof with modules arranged vertically and 0° roof hooks is described as an example.

C1 Determination of system position and attachment points

Determine the position of the PV plant on the roof and mark it. Observe the edge distances indicated in the plan. Position the supports according to the enclosed mounting plan, adapted to the local conditions (here: roof hooks).

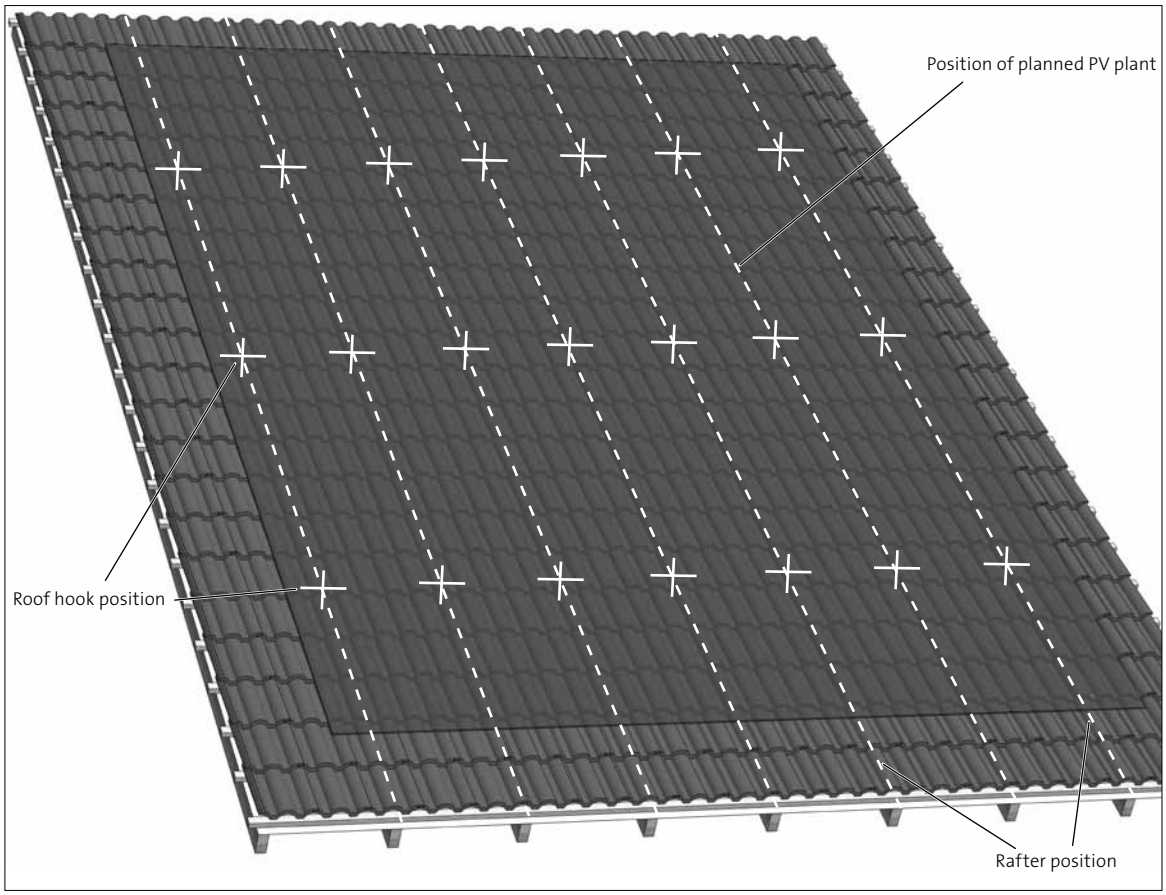


Fig. C 1-1

C2 Installing the mounting components

Remove the roof tiles at the designated points and fasten the roof hooks. Ensure that the attachment points are in a uniform line. Use the roof hook adapter plate with 30 mm roof battens. Grind out removed roof tiles as needed with the angle grinder and replace onto roof. See also Chapter B 7 – Fastening options. The flange plate for additional adjustability can be used if the substructure is uneven.

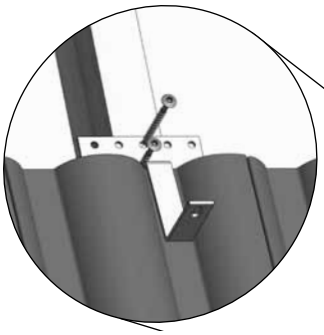


Fig. C 2-1 Detail 1

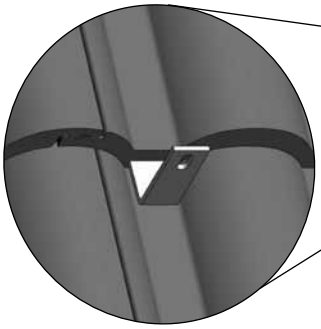


Fig. C 2-1 Detail 2

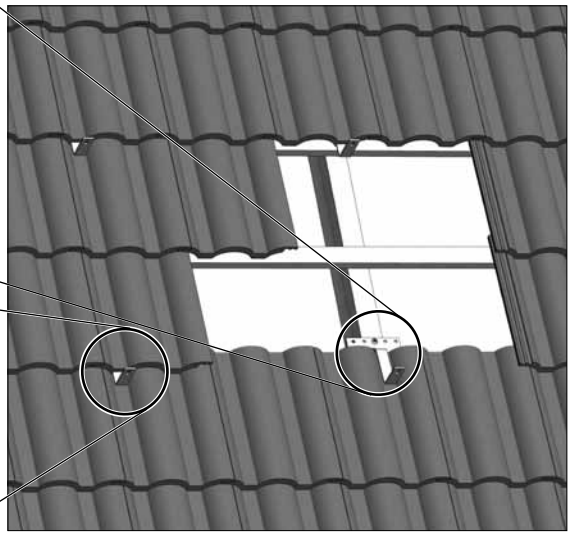


Fig. C 2-1

Fig. C 2-2 Underside of tile

C3 Installing the supporting profiles

Mounting the profile layer

Align the vertical supporting profiles on the top and bottom in a row and fasten to the roof hooks using one M8 Torx screw each with slot nut.

If necessary: Mount profile connector between frames.

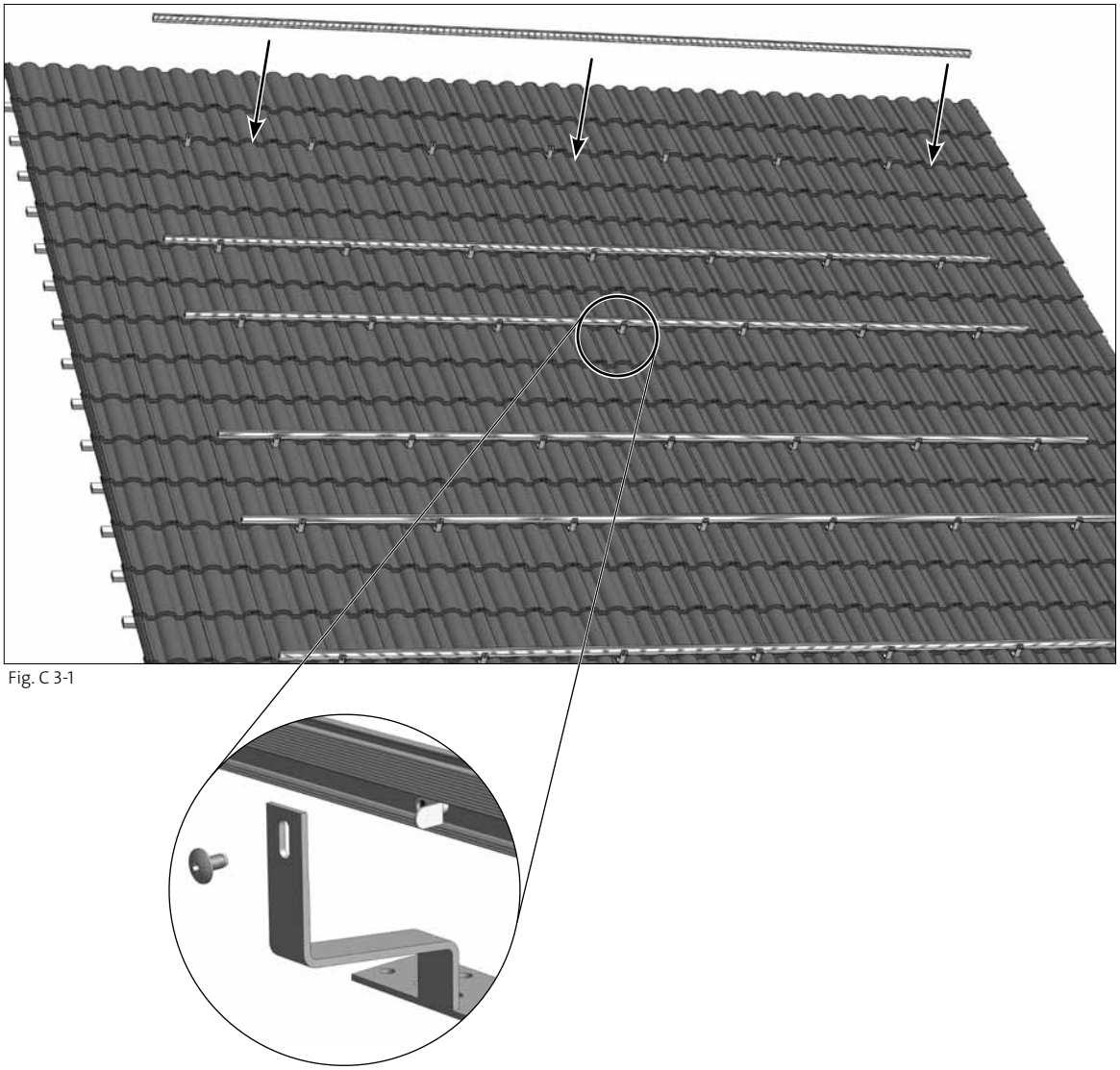


Fig. C 3-1

C4 Installing the solar modules

Fasten solar modules to the supporting profiles on the long sides using module clamping. General dimensional tolerances must be observed when arranging the solar modules; a maximum gap of 1 mm from the clamping screw can even these out. Indent ≥ 30 mm at the edge of each solar module and insert a spacer. Use a torque wrench during installation. Supply a torque of 15 Nm.

- ▶ Read the solar module instructions provided with the solar modules.

Torque **M_A = 15 Nm**
Driver for module clamping: T40

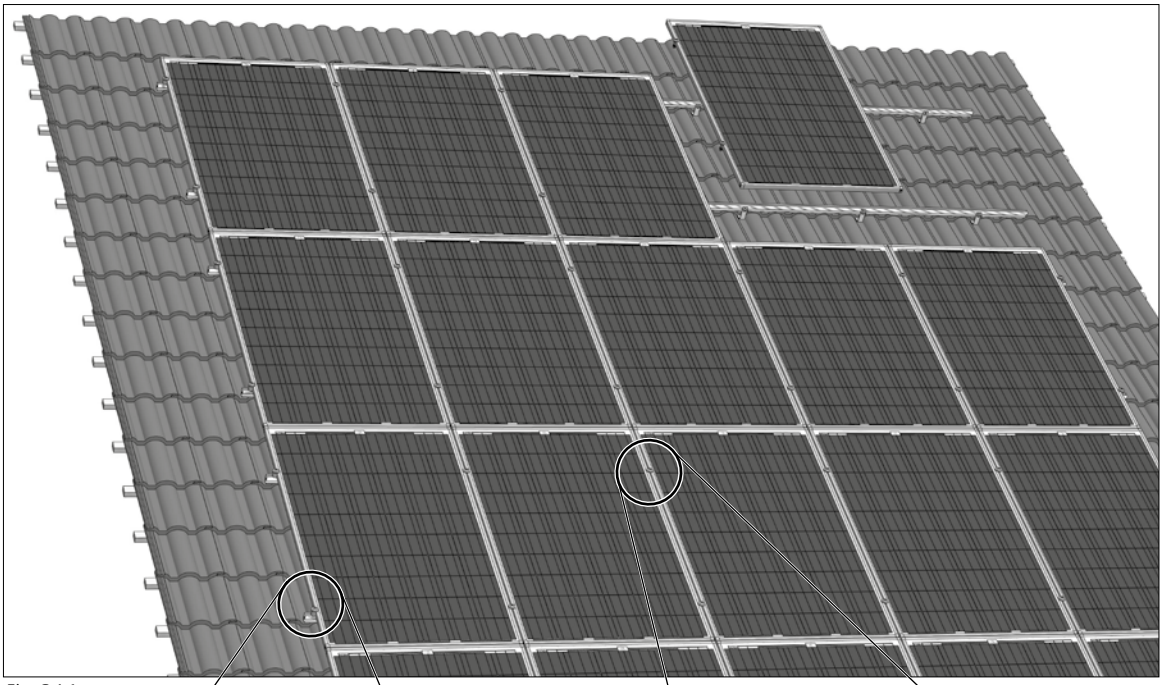


Fig. C 4-1

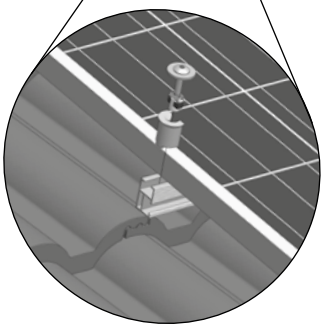


Fig. C 4-1 Detail 1

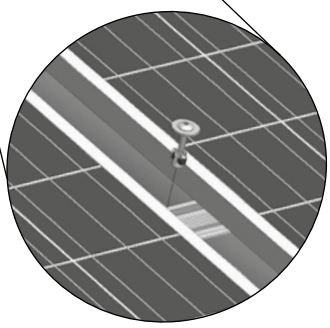


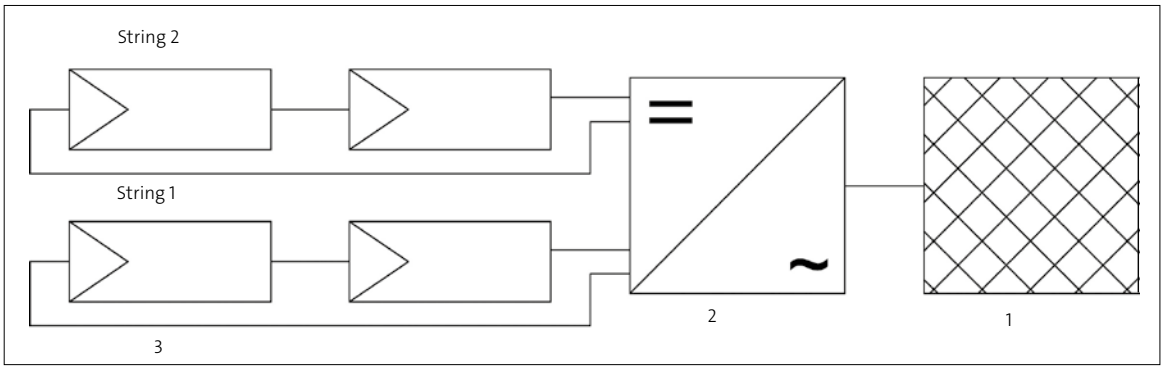
Fig. C 4-1 Detail 2

C5 Interconnecting the solar modules

DANGER!

Lethal voltages

- Connecting solar modules in series can cause lethal voltages!
- Never connect the inverter for testing.
- The solar power system must be connected to the public grid and isolated by a certified electrician only.
- The technical instructions enclosed with the unit shall be strictly adhered to for the installation, electrical connection and operation of the grid-connected inverter.



1 Grid
2 Inverter
3 Solar power generator

1. Wire the solar modules together using the wiring diagram for the corresponding arrangement option. You can find the plans in the document Installation Information.
- Adhere strictly to the specifications of the wiring plan (distribution of strings, any separating filters, cable groups). Improper wiring can destroy the inverter and/or solar modules.
- In order to minimize inductive coupling in case of strike lightning current, the outgoing and return lines (+/-) of the string must be laid as closely to one another as possible (while avoiding looping).
- Do not under any circumstances allow less than the minimum bending radius for wires (5x wire diameter).
- Do not mount or install solar modules at temperatures below -5°C.
- Keep sockets and plugs dry during installation.

2. Lay the cable group.
3. In doing so, fasten the wires to the supporting profile with UV-resistant wire ties.
4. Mount and wire the next module rows, making sure of correct polarity.

Testing

1. Check that the multi-string solar generator is correctly connected by measuring the open circuit voltage of the individual strings.
2. Compare the measured values with the specifications.

Deviations are a sign of wiring error.

CAUTION!

- Note the currently valid instruction sheet for the assembly of multi contact plug connectors. Use only approved tools for assembling the cable group. Do not deviate from the procedures described in the instruction sheet as otherwise there is no guarantee of safety nor compliance with technical data in the case of DYI assembly.

Maintenance, repair and cleaning

D

CAUTION!

- For repairs, use original factory spare parts only!
- The use of other spare parts can cause serious personal injury and property damage!

- Do not stand or walk on solar modules.

- With a roof pitch of 15°, it is generally not necessary to clean the solar modules, as rainfall will have a self-cleaning effect.
- In case of heavy soiling (reduced performance), we recommend cleaning without cleansing material, using large amounts of water (using a hose) and a gentle cleaning tool (sponge). Under no circumstances must dirt be scraped or rubbed off dry, as this may cause micro scratches that would impair module performance.
- The generator array should be inspected at regular intervals for flawless condition (visual inspection, connection check).

PV plant maintenance

The PV plant should be inspected annually for the following:

- All fasteners secure and free of corrosion
- All cable connections secure, clean and free of corrosion
- Wires and front glass intact

Liability

E

- Since it is not possible to check or monitor compliance with the instruction sheet and the conditions and methods of the installation, operation, use, maintenance and repair of the Sunfix plus assembly system from SolarWorld, SolarWorld AG can accept no liability for damage arising due to improper use, installation, operation or maintenance and repair. Liability on the part of SolarWorld is further excluded if SolarWorld, its representatives or vicarious agents are not guilty of gross negligence or intent. The preceding constraints are not applicable to damage due to loss of life, physical injury or health damage or in cases in which liability is mandated by law, e.g. in liability for acceptance of a warranty, liability under the German Product Liability Law or in cases of culpable violation of essential contractual obligations (cardinal obligations).
- The preceding liability constraints notwithstanding, liability on the part of SolarWorld for patent law violations or violations of third party rights arising from the use of solar modules and the assembly systems is excluded unless required by law.
- The **VDE-GS certification** shall lapse upon use of components not certified for the Sunfix plus assembly system.
- Text and images in this instruction sheet correspond to the state of the art upon printing. Subject to change.

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Solar Factory/Freiberg, Germany
Sunicon/Freiberg, Germany
SolarWorld Innovations/Freiberg, Germany
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