

# Installation and operating instructions

Valid for the following Meyer Burger solar roof tile:

**MEYER BURGER TILE** - Product type: MB\_BF6B1B\_17

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During the planning, installation, operation and maintenance of grid-connected  
The following regulations and standards, among others, must be observed for photovoltaic systems:

#### **EU-STANDARDS**

##### **EUROCODE 1 (EN 1991-1)**

###### **EN 13501**

Behavior of building materials and components in the event of fire

###### **EN 60728-11**

Installation and operation (earthing) of antenna systems

###### **EN 62305**

Lightning protection

###### **EN 62446**

Grid-connected photovoltaic systems

###### **IEC 60364**

Installation of low-voltage systems

#### **VDE regulations**

##### **VDE 0100**

Installation of low-voltage systems

##### **VDE 0100-712**

Installation of low-voltage systems

##### **VDE 0105-100**

Operation of electrical systems

#### **NATIONAL STANDARDS**

German Institute  
for Building Technology Building Rules List B Part 1  
Model administrative regulation for  
technical building regulations

##### **DIN EN ISO 7441:2015**

Corrosion of metals

#### **Note**

The warranty conditions can be found at  
[www.meyerburger.com](http://www.meyerburger.com).

**Please check the current manual at  
[www.meyerburger.com](http://www.meyerburger.com) to see whether updated installation instructions are available.**

## 1. Introduction

### **Congratulations on the purchase of your Meyer Burger Tile solar roof tile**

The Meyer Burger Tile was developed and designed in Germany and Switzerland and manufactured in Europe. When selecting all components for the solar roof tile, we attached great importance to efficiency, quality and durability.

The most important properties are as follows:

- Simple assembly
- Easy to replace
- Very high durability
- Extremely high protection against hail, wind and snow loads
- Best storm suction protection
- Best shade compensation
- Built-in climbing aid
- Low weight

The Meyer Burger Tile is a building-integrated photovoltaic module (BIPV) that has the size and appearance of a conventional roof tile. The Meyer Burger Tile is just as easy to install as a conventional roof tile. It is attached to the conventional substructure using four screws. The Meyer Burger Tile is designed so that it can be used together with conventional roof tiles from well-known manufacturers (e.g. Nelskamp Planum, Braas Tegelit, Creton Kappstadt). This means that individual roofs (south, east, west) or partial areas can also be covered with Meyer Burger Tile alone.

The Meyer Burger Tile consists of a high-strength aluminum mounting housing and an inserted sliding glass-glass photovoltaic module. In combination, this creates a very aesthetic, durable and highly efficient photovoltaic tile that enhances your roof and at the same time supplies electricity from sunlight. The mounting housing fulfills several functions thanks to its special design. On the one hand, it is a second water-bearing layer that safely drains any moisture penetrating from the glass into the next Meyer Burger Tile below or onto a complementary tile. The housing also serves as an air duct. This guides the warm air from the eaves to the ridge, thus ensuring controlled rear ventilation of the Meyer Burger Tile. This reduces the temperature on the Meyer Burger Tile and significantly increases performance and service life.

The patented movability of the glass pack offers a number of advantages for the application of Meyer Burger Tile.

The roofer installs the Meyer Burger Tile in the same way as conventional roof tiles. The electrician then connects the electrically interconnected Meyer Burger Tile to the inverter. In combination with our fastening concept, it is also possible to simply remove any Meyer Burger Tile at any point without having to completely or partially remove and re-roof the entire roof.



These instructions describe the roofing process, installation, maintenance and disposal of the Meyer Burger Tile. These instructions must be read carefully and in full before transportation, installation or commissioning!

The instructions contained in this document must be observed and are intended to ensure the professional, safe and economical installation of Meyer Burger Tiles.

These instructions contain important disclaimers and warnings that must be observed. Failure to comply with disclaimers, warnings and installation instructions may result in personal injury and/or property damage and will void any claim for recall or warranty.

We reserve the right to update these installation and operating instructions and to publish them without prior notice. For the use, roofing/installation, operation and maintenance of components from other manufacturers, their respective manuals and instructions must be observed.

All data and specifications in these installation instructions are provisional and can be changed at any time. The latest version can always be found at **[www.meyerburger.com](http://www.meyerburger.com)**.



### 1.1 Certification and technical Data

For a further list of currently available certificates and all technical and electrical data, please refer to the corresponding data sheets at [www.meyerburger.com](http://www.meyerburger.com).

The modules are tested and approved in accordance with IEC 61215-2021 and IEC 61730-2016.

Module line	Meyer Burger Tile
Solar cell type	Half-cell module M6, mono n-Si, HJT
Front cover	Solar glass, 3.2 mm
Back cover	Float glass, 3.0 mm
Dimensions L x W x H [mm]	521.2 x 334.0 x 26.3
Visible area [m <sup>2</sup> ]	0.10
Weight [kg]	2.8
Design load +/- [Pa]	6,000 / 1,600
Max. Test load +/- [Pa] <sup>1</sup>	9,000 / 2,400 <sup>1</sup>
Permissible ambient temperature [°C]	-40 - +45
Max. System voltage [V]	1,000
Max. Reverse current load capacity [A]	15
Protection class junction box	1 diode, protection class IP68 according to IEC 62790
Cables	PV cable 4 mm <sup>2</sup> , 0.5 m long, according to EN 50618
Plug	Plug type 1 <sup>2</sup> , in accordance with IEC 62852, protection type IP68 only after connection

Fire class according to EN 13501-5	Hard roofing B <sub>ROOF</sub> (f1)
Hail resistance class according to VKF	HW 5
Meyer Burger Tile/m <sup>2</sup>	10
Power/m <sup>2</sup>	167 W/m <sup>2</sup>
Deck length <sup>3</sup> (recommended)	340 mm
Deck width	300 mm
Distance between Meyer Burger Tile	> 1 mm
Mechanical fastening	2 tinsmith screws with sealing ring, min. V2A, rec. size 4.5 mm x 35 mm
Connection Potential equalization	2 self-tapping screws with loosening protection, min. V2A, rec. size 4.0 mm x 25 mm

<sup>1</sup> Safety factor 1.5 x design load

<sup>2</sup> Plug type 1: NINGBO PV-GZX1500

<sup>3</sup> Shorter deck length reduces performance

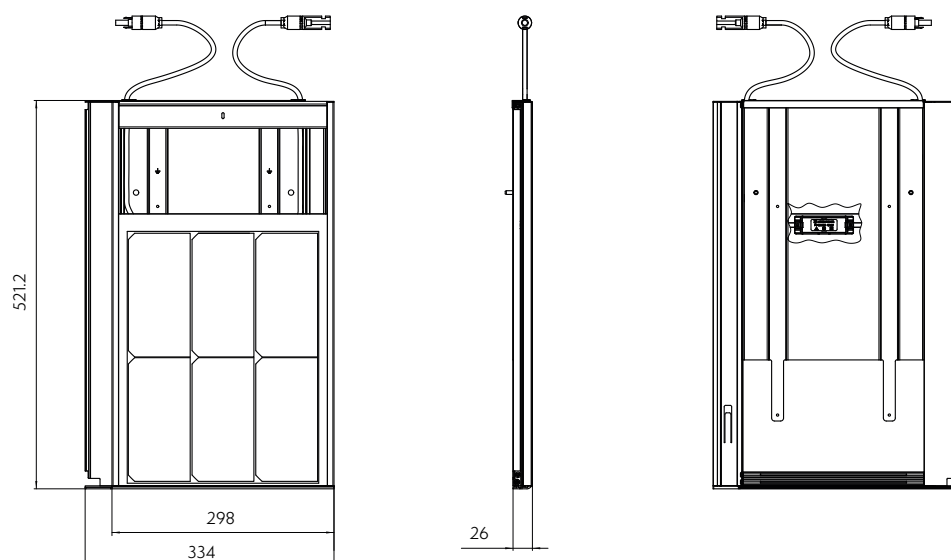


Figure 1: Technical drawing of the Meyer Burger Tile

## 1.2 Area of application

The modules are suitable for the following areas of application:

- Ambient operating temperature  $-40\text{ }^{\circ}\text{C}$  to  $+45\text{ }^{\circ}\text{C}$ .
- Compressive loads of max.  $9,000\text{ Pa}$  (corresponding to approx.  $920\text{ kg/m}^2$ ) and tensile loads of max.  $2,400\text{ Pa}$  (corresponding to approx.  $240\text{ kg/m}^2$ ) (including safety factor 1.5).
- Installation is carried out on a substructure for roof tiles in accordance with the regulations of the German roofing trade.
- All country-specific electrical and structural safety standards must be strictly observed during installation.
- Do not direct any concentrated light (e.g. mirrors, lenses, etc.) onto the modules.



Under normal conditions, it is likely that a photovoltaic module will be exposed to conditions that generate a higher current and/or voltage than specified for standard test conditions.

Accordingly, the values specified on the Meyer Burger Tile for  $I_{sc}$  and  $V_{oc}$  should be multiplied by a safety factor of 1.25, if the voltage values of the components, the conductor current values and the size of the controllers connected to the PV output (e.g. inverter) can be determined.

The safety factor may vary depending on local conditions.

## 1.3 General Notes

- Before installing the building-integrated photovoltaic system (BIPV system), find out about the applicable guidelines and approval requirements from the relevant local authorities and energy suppliers. Only if you take these requirements into account can you ensure economic success.
- Keep the installation instructions for the entire service life of the PV modules.
- Ensure that these installation instructions are accessible to the operator at all times.
- Pass the installation instructions on to any subsequent owner or user of the PV modules.
- Observe the applicable documents.

## 1.4 Intended use

These installation instructions are valid in Europe. The instructions provide information on safety when handling the crystalline high-performance solar roof tiles from Meyer Burger (Germany) GmbH as well as on installation, mounting, wiring, maintenance and recycling.

### NOTE

**Deviations from the installation instructions and changes to the solar roof tile will invalidate the guarantee and warranty. Please refer to the warranty conditions for further details.**



When planning, constructing and operating grid-connected photovoltaic systems, the local guidelines, requirements and building laws must be observed.

All necessary local, regional and national (safety) regulations, ordinances and all technical, electrical and constructional standards in the design and construction of the system. installation of the BIPV system must be complied with. The regulations on occupational safety must be complied with at all times and occupational health and safety must be ensured.



A solar roof tile is a building-integrated photovoltaic module and an electrical product. There is a risk of electric shock if handled and installed incorrectly. All work may only be carried out by qualified specialist personnel.

## 2. Planning

The Meyer Burger Tile uses highly efficient HJT solar cells with the patented SmartWire Connection Technology (SWCT®). These are optimally arranged so that they achieve a high power density with appealing aesthetics.

### 2.1 Electrical Design

- The Meyer Burger Tiles have pre-installed bypass diodes (not replaceable), which ensure protection and improved performance of the overall system if one or more Meyer Burger Tiles are shaded.
- Only modules of the same module line and power class may be interconnected.
- A safety factor of 1.25 for the electrical variables open terminal voltage ( $V_{OC}$ , oc: open circuit), short-circuit current ( $I_{SC}$ , sc: short circuit)) must be observed, as a module
- can deliver a higher current and/or higher voltage than under standardized test conditions due to special ambient conditions.
- It is recommended to use UV-resistant PV cables.
- These must have a cross-section of at least 4 mm<sup>2</sup> (12 AWG) and be heat-resistant to at least 90 °C (194 °F).
- Identical connecting plugs (same manufacturer, same plug types) must be selected for the extension and connection cables. For information on the type of connector plug, see technical data and data sheet.
- To achieve optimum solar radiation and thus maximize the yield, it is important to avoid shading.
- The individual system components (modules, fuses, inverters, etc.) must be matched to each other according to their data sheets.
- The local, regional and national regulations for the installation of electrical systems must be observed.

### 2.2 Series connection

- The modules can be connected in series to achieve the required total voltage.
- The current (current at the max. power point,  $I_{MPP}$ ) of the modules connected in series should be the same, as the maximum current is determined by the module with the lowest current.
- The maximum system voltage must be observed and can be found in the table in the chapter "Technical data - Max. system voltage" or in the corresponding data sheet. System voltage" or the corresponding data sheet.
- The maximum number of modules in series is calculated by dividing the maximum system voltage ( $U_{sys}$ ) by 1.25 times the open-circuit voltage ( $V_{OC}$ ). The resulting number is rounded down.
- E.g. Meyer Burger Tile =  $U_{sys} / (V_{OC} \times 1.25) = 1000 \text{ V} / (2.23 \text{ V} \times 1.25) = 358 = \text{max. } 358 \text{ modules rounded down in series.}$

### 2.3 Parallel connection

- The modules can be connected in parallel to achieve the required total current.
- The voltage ( $V_{MPP}$ ) of the modules connected in parallel should be the same.
- The cable cross-section of the extension cable must be adapted to the maximum current carrying capacity of the wiring.
- To prevent a reverse current, an additional reverse current fuse (e.g. blocking diodes or string fuse) is required.



If more than 3 strings are to be connected in parallel, an additional string fuse must be used.

### 3. Mounting

#### 3.1 The Meyer Burger Tile- roof system

The Meyer Burger Tile system consists of a Meyer Burger Tile, the complementary roof tiles and the following components, which must be provided by the installer on site:

- Eaves plate below
- Perforated plate below
- Cable for connecting the rows (pre-assembled)
- Top ridge plates
- Metal sheets for complementary gable ends

#### 3.2 Module alignment

- The recommended cover length of 340 mm results in a minimum roof pitch of 35°, in accordance with the specifications of the complementary tiles. For lower roof pitches, appropriate substructures (rainproof sub-roof etc.) must be provided.
- Shading and partial shading (e.g. by trees, chimneys, buildings, dirt, snow, overhead lines, or similar) should be avoided.
- An angle of inclination greater than 20° has a positive effect on the self-cleaning of the modules.

#### 3.3 Location of the installation

The following notes on the installation location must be observed. The modules must not be installed:

- in closed rooms
- above 2,000 m above sea level.
- in places where backwater can form (e.g. due to flooding)
- in the vicinity of highly flammable gases or vapors (e.g. gas containers or filling stations)
- in locations where contact of chemical substances with parts of the module (e.g. oil or solvents) is possible

#### 3.4 Transportation

After delivery of the Meyer Burger Tile, you are obliged to inspect it for transportation damage. If such damage is recognizable, you must document it on the delivery bill and take photos of the damage to prove the existence of such damage. Additionally the delivery company must confirm the damage by signing the Confirm the delivery bill with the reported damage.

The solar roof tiles from Meyer Burger are durable and robust thanks to their small dimensions and quality components.

Despite these properties, it is not recommended to unpack them before starting the roofing work to avoid accidental damage to the Meyer Burger Tile. The storage environment must be dry and protected to prevent damage to the product and packaging.

We recommend recycling the packaging of the supplied Meyer Burger Tile. Please contact your local waste disposal company.

Proceed with caution when unpacking, transporting or storing and observe the following instructions:

- During storage and transportation, the Meyer Burger Tile must not be loose or unsupported.
- Secure the Meyer Burger Tile against falling over!
- We recommend leaving the Meyer Burger Tile in its packaging in a dry interior space until roofing and installation begins.
- Do not drop the Meyer Burger Tile.
- Do not place any objects on the Meyer Burger Tile.
- Do not allow the Meyer Burger Tile to come into contact with sharp objects.
- Do not step on the Meyer Burger Tile. This can damage the surface.

#### 3.5 Security



The covering, installation and commissioning of Meyer Burger Tile requires a high level of expertise and experience and may therefore only be carried out by certified specialists.



Appropriate safety precautions must be taken when working on roofs. The safety regulations of the trade association must be strictly observed. To protect yourself and Meyer Burger Tile, the following safety instructions must be observed:

- When installing and maintaining the Meyer Burger Tile, follow the guidelines and safety instructions for installation and maintenance of electrical appliances and/or systems as well as the guidelines for grid-parallel operation of solar systems from the energy supplier must be observed.
- Before installation, each Meyer Burger Tile must be inspected and checked for mechanical integrity (e.g. glass breakage). Do not install a damaged Meyer Burger Tile.
- If possible, avoid shading and arrange each Meyer Burger Tile accordingly to prevent damage to the Meyer Burger Tile, PV array failures and major efficiency losses.
- Do not install the Meyer Burger Tile in the vicinity of highly flammable materials, gases or vapors.
- The guidelines on fire hazards for electrical appliances apply. (e.g. VDI 3819)
- The housing must not be modified or attached in any way other than described in the instructions. Strictly adhere to the installation instructions.
- Do not hold or transport the Meyer Burger Tile by the cables.
- Observe the safety instructions for the other components of the solar system.
- Opening a closed string (e.g. when disconnecting the DC from the inverter under load) can cause a life-threatening arc:
  - Do not disconnect the Meyer Burger Tile under load or voltage
  - Only Meyer Burger Tiles in voltage-free strands may be disconnected at the plug using a suitable tool
- Every component of the Meyer Burger Tile System is made of glass and aluminum. To avoid electro chemical corrosion or contact corrosion, only materials that do not lead to such corrosion when in contact with the above-mentioned materials may be used. Please also observe DIN EN ISO 7441:2015.

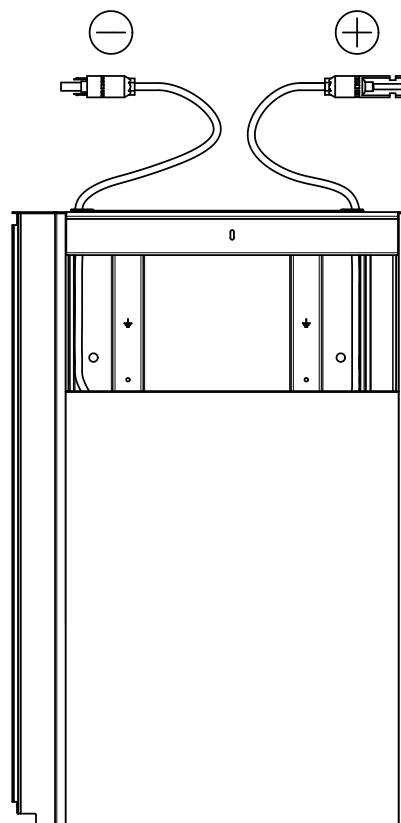


Figure 2:  
Meyer Burger Tile with the two  
connections pointing upwards (+/-)

## Structure of the Meyer Burger Tile

The Meyer Burger Tile consists of two different parts. One of these is the photovoltaic module (PV module), which consists of two glass panes that form a permanent unit together with the solar cells and the encapsulation material. On the back of the PV module is the junction box with the bypass diode, the two cables and the two plugs. The finished PV module is pushed into the mounting housing, which is then screwed into place. The resulting product is the Meyer Burger Tile, which is delivered ready for installation.

## Fastening the Meyer Burger Tile to the roof structure

Once the Meyer Burger Tile has been positioned horizontally on the support battens, it must be fastened to the support battens with two sheet metal screws (see technical data for specifications) (see Figure 4). The module can only be safely accessed by the roofer or electrician and used as a step aid once it has been screwed to the substructure (support battens).

Two cables with a plug and a socket are led out from the top end of the housing. These are used for the horizontal connection between the individual Meyer Burger Tile. Due to the different connectors, there is always a Protection against reverse polarity guaranteed. Further, more detailed information on this topic and notes for planning can be found in chapter 5 "Planning notes".



Only connectors of the same type as the Meyer Burger Tile may be used for installation. The plug connector of the Meyer Burger Tile may differ from the plug connector of the inverter. The same connector types (see information in the data sheet and on the Meyer Burger Tile) must be used to connect the strings.

If this is not possible, an adapter cable with the original Meyer Burger Tile connector and the selected string connector can be used.

## Electrical connection of the Meyer Burger Tile

Solar plug for simple and safe electrical assembly

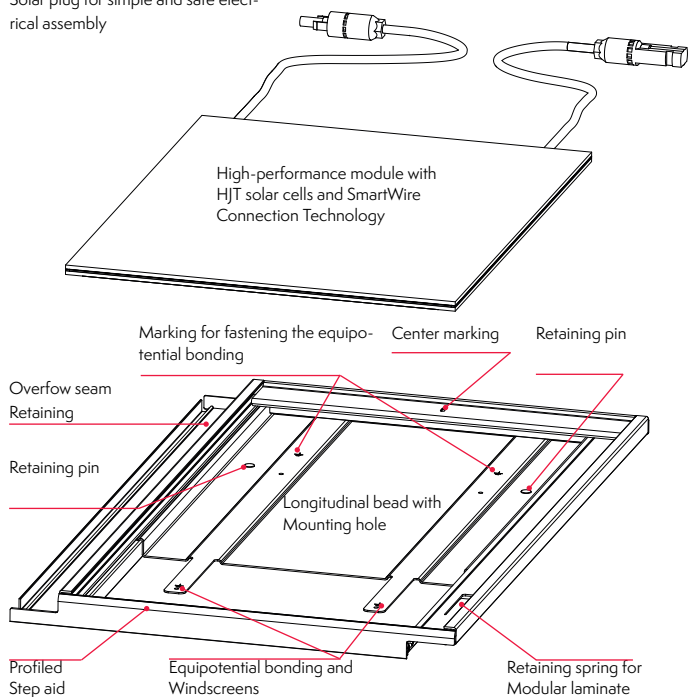


Figure 3: Movable module laminate with HJT cell strings, J-box with PV cables incl. plugs (pictured above), solar roof tile housing consisting of powder-coated extruded profiles and sheet metal (pictured below)

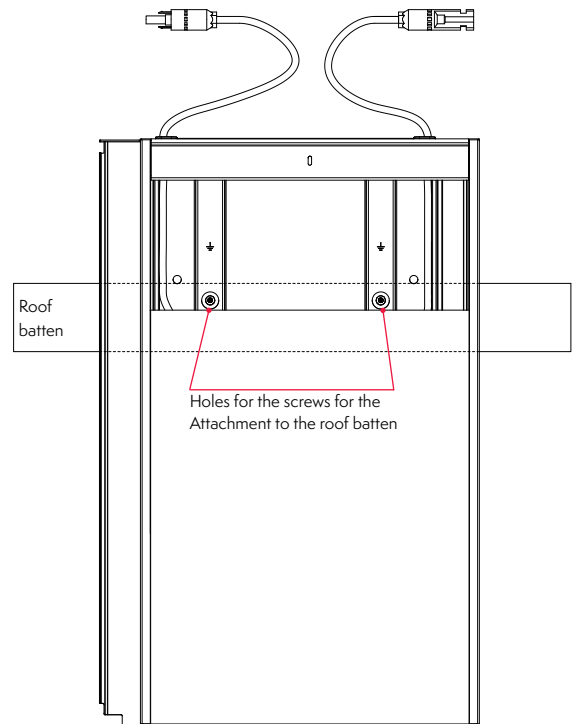


Figure 4:  
Securing the Meyer Burger Tile  
with two tinsmith screws on the roof batten

### Rear ventilation of Meyer Burger Tile

In order to enable rear ventilation for better cooling of the module despite the closed housing under the Meyer Burger Tile, the housing is open at the bottom end and open at the top end. By placing the Meyer Burger Tiles on top of each other, there are always two openings above each other and a continuous air duct is created. This favors the creation of a chimney effect, which ensures cooling of the modules on the rear side. Figure 5 shows overlapping Meyer Burger Tiles.

In order to ensure the rear ventilation of the Meyer Burger Tiles when installed, it must be ensured that a sufficient ventilation cross-section is available on site at the beginning and end of each tile gap (min.  $46 \text{ cm}^2$ ). This can be achieved using ventilation grilles, ventilation roof tiles or ventilation ridges, for example.

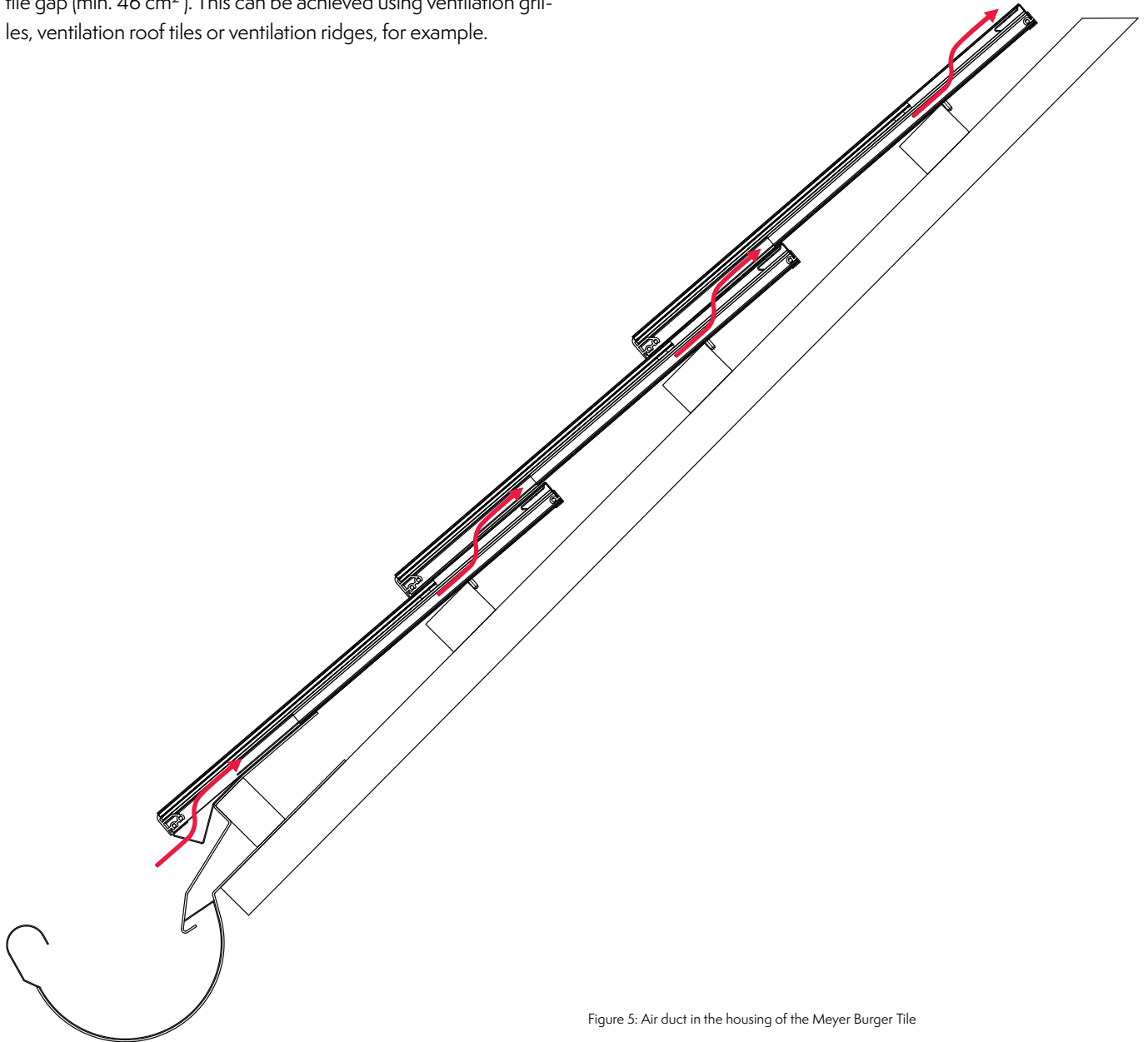


Figure 5: Air duct in the housing of the Meyer Burger Tile

## 4. Installation



The electrical installation must be carried out by a specialist tradesman with the necessary specialist knowledge and certificates.

The roofing and electrical installation of a simple Meyer Burger Tile system is described on the following pages and illustrated with pictures, tables and technical drawings.

The Meyer Burger Tile can be installed on roofs with a pitch of at least 20°. Please note that due to the recommended deck length of 340 mm the minimum roof pitch is 35°. If the roof pitch is lower and the recommended deck length is adhered to. Corresponding measures must be taken on the sub-roof if the roof pitch is lower and the recommended deck length is adhered to. The requirements for the sub-roof, which result from the complementary tiles, must be observed. The installation of the Meyer Burger Tile on the roof structure is described with the following details:

- Mounting the eaves flashing
- Installation and fastening of the Meyer Burger Tile to the roof structure (storm suction protection)
- Horizontal connection of the Meyer Burger Tile and vertical connection using the connection cable
- Mounting the equipotential bonding
- Installing the ridge

Before starting the electrical installation, the installer must draw up an installation plan that takes into account the maximum power, voltage, current and all components relevant to the safety of the system. The plan must be available to the roofer for the mechanical installation, as it includes how many Meyer Burger Tiles are required and in which position they must be arranged. The position of the string connection cables should be coordinated with all trades involved in the planning. This coordinated planning must be precisely marked on the installation plan and/or roof plan. Before starting the installation work, these connections should be checked again on site.

The string cables must be positioned in accordance with the electrician's or solar installer's instructions.

### 4.1 Roof construction with Meyer Burger Tile and complementary tiles

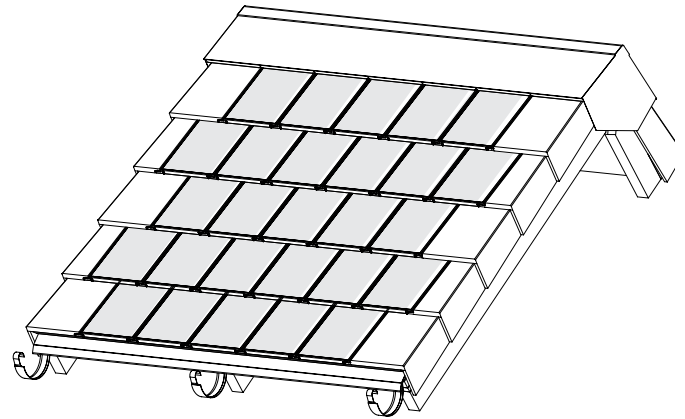


Figure 6: Simplified example roof with Meyer Burger Tile (gray) from eaves to ridge and complementary tiles (white)

The Meyer Burger Tile was developed to be complementary to conventional roof tiles from various manufacturers and to be covered in combination. For correct installation, please follow the installation instructions of the selected tile manufacturer. The selected complementary tiles must correspond to the cover width and length of the Meyer Burger Tile and be compatible in the way the overlap seams are covered. For each roof pitch, the requirements for a sub-roof, which can also be found on the website of the complementary tile manufacturer, must be taken into account. The standard dimensions of e.g. 60 x 40 mm must be used for the eaves batten.



Due to the self-cleaning effect, we recommend a roof pitch of at least 20 degrees for installation.

**IMPORTANT!** When planning, the greater overall length of the Meyer Burger Tile housing must be taken into account in order to provide sufficient space in the ridge area. Compared to most complementary tiles (length 420 mm), the Meyer Burger Tile is approx. 101 mm longer (Meyer Burger Tile 521.2 mm).



#### 4.2 Installation of the Meyer Burger Tile

The distance between the eaves board and the lower edge of the rafters is shown in the table below. On the one hand, this position provides ideal mechanical support for the roof tiles. On the other hand, it ensures that the opening for the air duct of the Meyer Burger Tile is sufficiently large so that sufficient air can flow behind the solar roof tiles for rear ventilation.

To ensure this rear ventilation, there must be a ventilation opening at the bottom (eaves area) and at the top (ridge area) (ventilation and extraction). The ventilation cross-section must not be less than 46 cm<sup>2</sup>.

Roof angle	35° – 70°
V [mm]	min. 90
W [mm]	96
X [mm]	340
Z [mm]	160

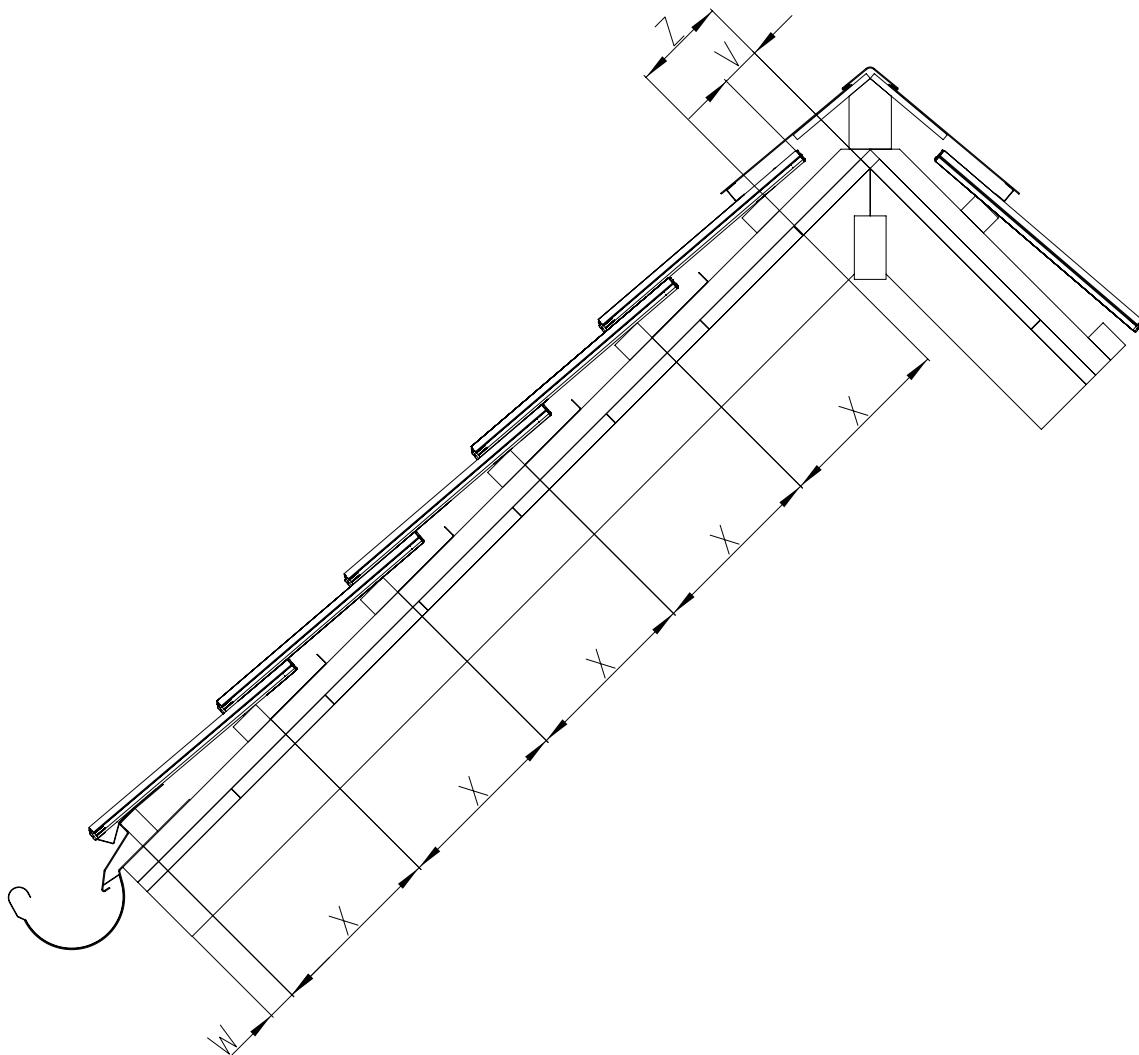


Figure 7: Profile view with dimensions for mounting on a roof with ridge

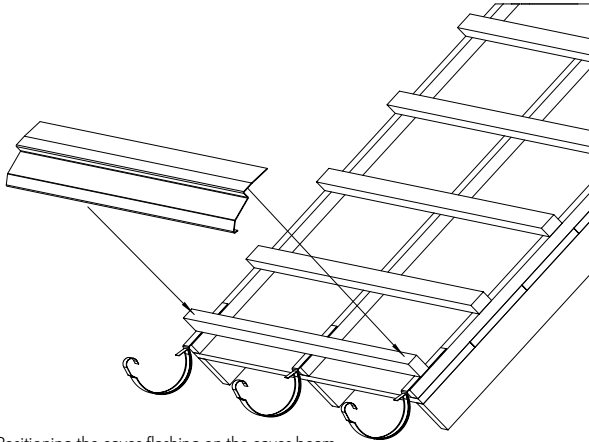


Figure 8: Positioning the eaves flashing on the eaves beam

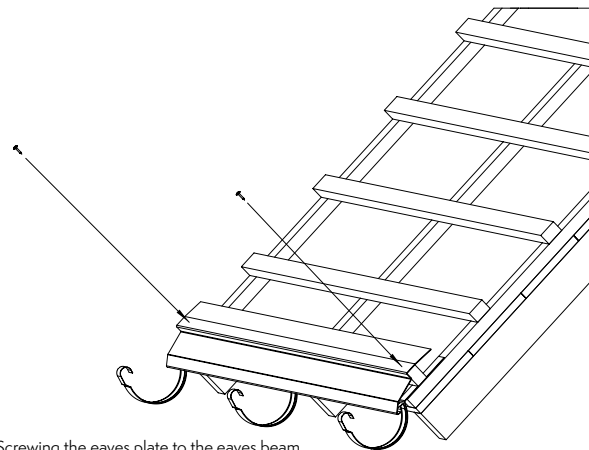


Figure 9: Screwing the eaves plate to the eaves beam

After installing the eaves batten, the eaves flashings are positioned and screwed together as shown in Figures 8 and 9. If several flashings are required for the entire roof, they must overlap by at least 250 mm. All overlapping eaves flashings must be connected in such a way that they are electrically conductive. This ensures that the necessary electrical potential equalization takes place via these sheets.

The perforated sheet is then attached to the flashing and the eaves board. Several perforated sheets are placed next to each other and screwed to the eaves board, as shown in Figure 11. The perforated sheet serves to protect animals from crawling in.

The roof covering starts in the bottom right-hand corner. The Meyer Burger Tile is laid to the left of the complementary roof tile.

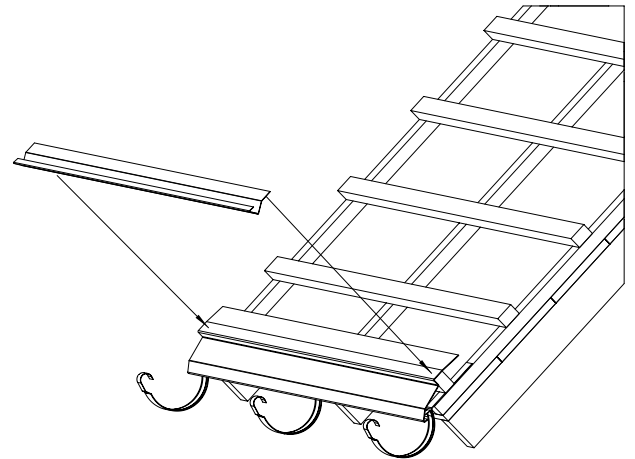


Figure 10: Positioning and screwing of the perforated plate

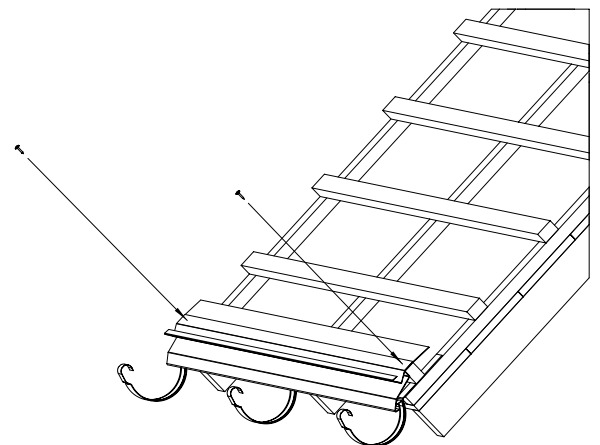


Figure 11: Positioning and screwing of another perforated plate

As shown in Figure 12, there are two aluminum round bolts in the upper area of the Meyer Burger Tile, which serve to hold the Meyer Burger Tile on the roof battens.

After positioning the Meyer Burger Tile, it must be fastened to the support battens with two sheet metal screws (see technical data for specifications), as shown in Figure 12. The module is only accessible to the installer once it has been screwed onto the support battens.

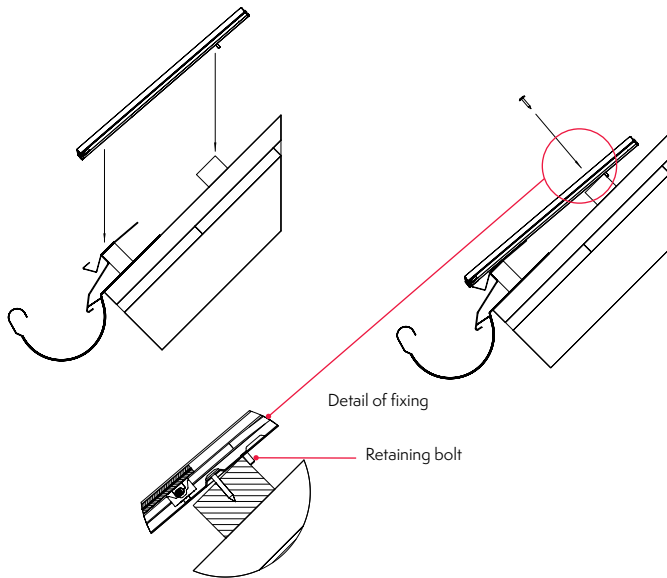


Figure 12: Positioning the Meyer Burger Tile on the roof battens

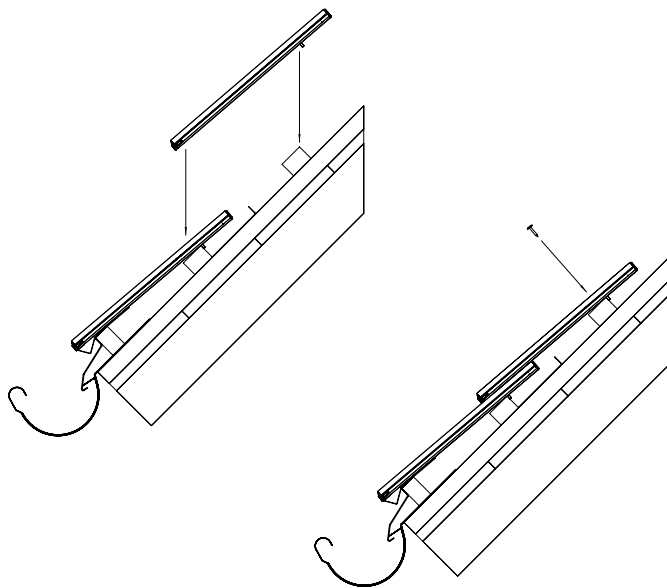


Figure 13: Covering the second row with the Meyer Burger Tile



When positioning the next Meyer Burger Tile on the batten, a horizontal distance of at least 1.0 mm must be maintained between the individual Meyer Burger Tiles to avoid thermal stresses.

Local specifications for fixing the roof tiles must be observed.

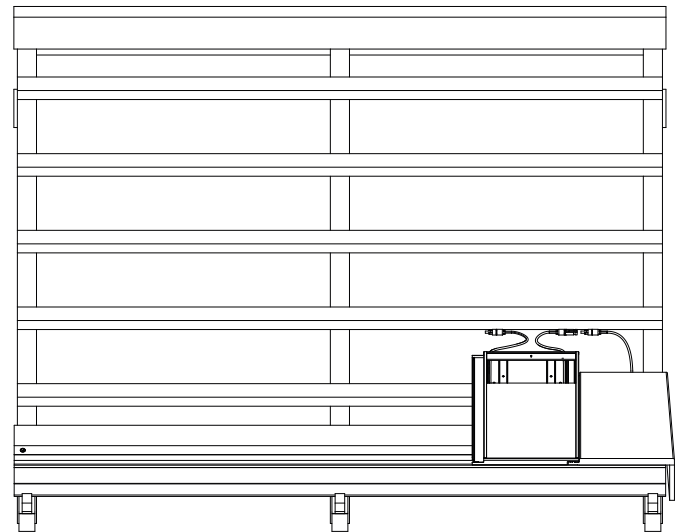


Figure 14: Start of the roofing in the bottom right corner of the roof with a Meyer Burger Tile

Meyer Burger Tiles are laid along the eaves until the desired quantity is reached, as can be seen in Figure 15.

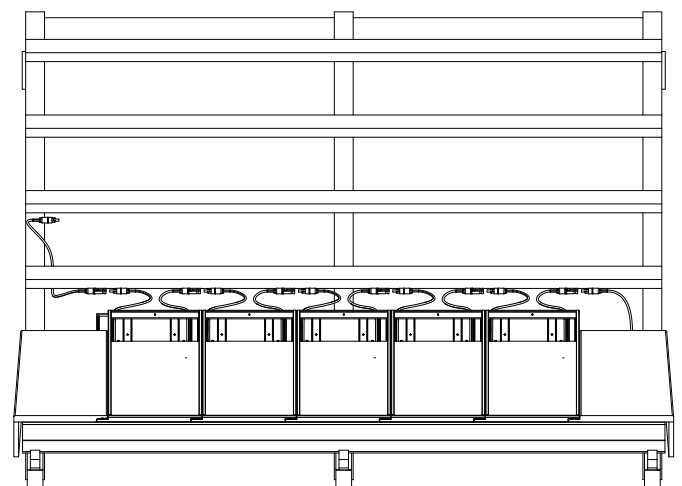


Figure 15: Roofed eaves row with gable-side roof tile and the additional tiles to the left and right of the Meyer Burger Tile.

Once the first row has been positioned, the second row follows the same procedure as before by mounting and securing the Meyer Burger Tile to the support battens as shown in Figure 16.

The roofing continues in this way up to the last row on the roof ridge. The ridge system is installed after all the roof tiles have been covered and the Meyer Burger Tile has been electrically connected. Ridge batten holders are used to mount the ridge sheets.



The ridge sheets must be installed in such a way that shading is avoided.

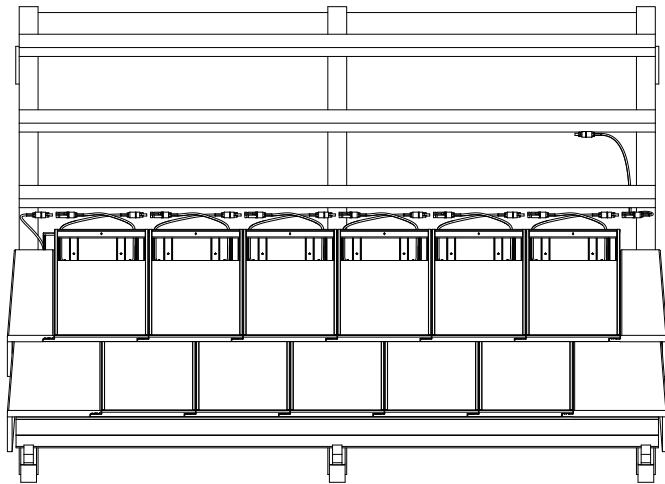


Figure 16: Covering the second row with the Meyer Burger Tile

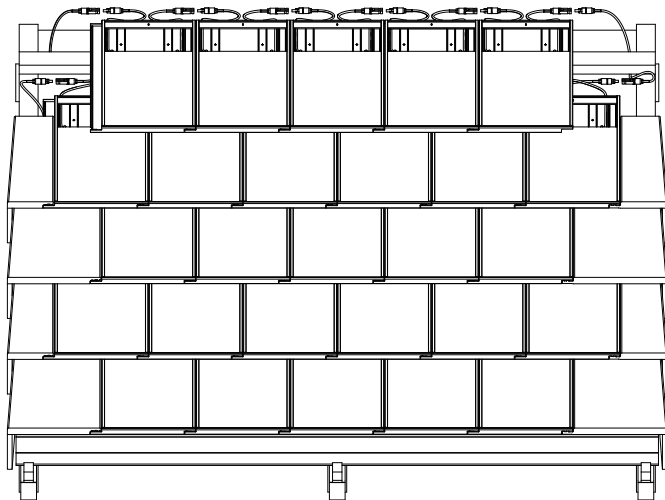


Figure 17: Covering the entire roof

After installing the ridge sheets on the left and right side, the ridge cap (curved) is placed on the roof peak and screwed into the ridge batten holders using self-sealing screws.

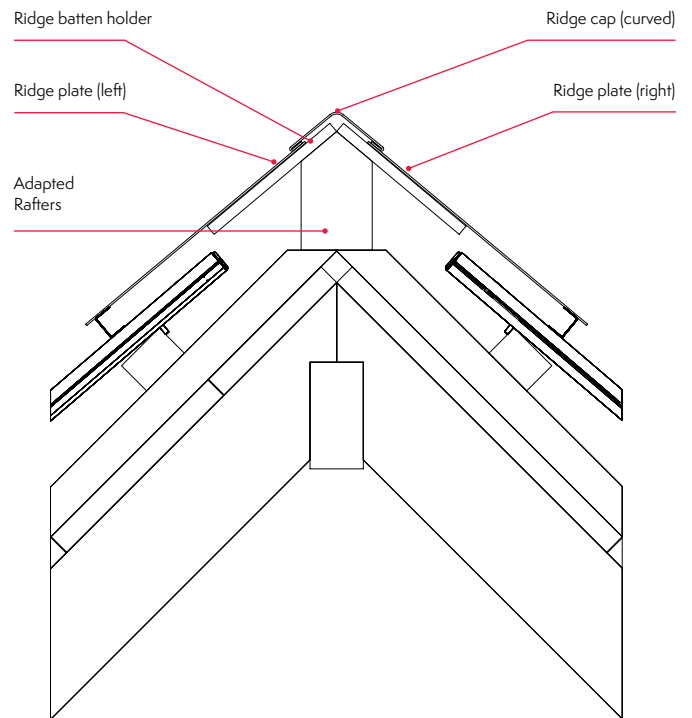


Figure 18: Ridge batten holder with installation of the ridge plates

### 4.3 Electrical Installation

The electrical installation includes the following points:

- Screwing of the Meyer Burger Tile to the supporting battens by the roofer
- Electrical connection of the individual modules and connection to the inverter
- Establishing equipotential bonding between the individual modules
- Establish equipotential bonding by screwing the Meyer Burger Tiles to the eaves with the eaves plate using two screws

#### Electrical connection of the Meyer Burger Tile

The electrical installation of the Meyer Burger Tile should start in the eaves area. To do this, the PV module in the Meyer Burger Tile is pushed up the eaves. The two potential equalization lugs and the eaves plate under the Meyer Burger Tile become visible.

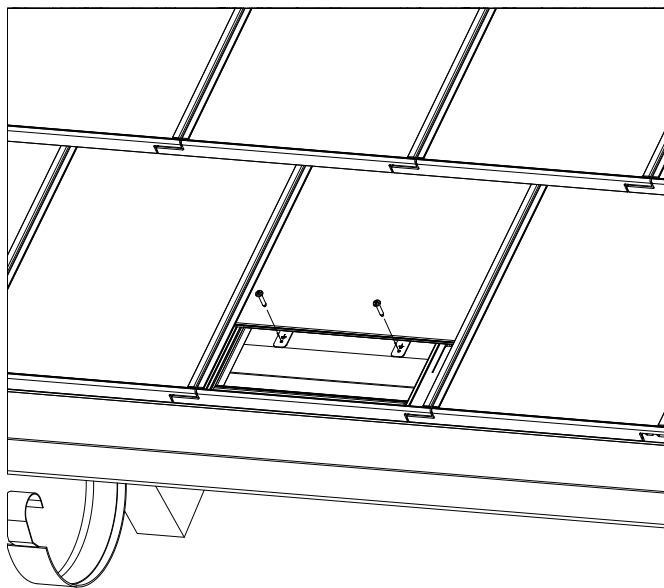


Figure 19: Sliding PV module of the eave Meyer Burger Tile and bent equipotential bonding lugs

Using a suitable tool, the equipotential bonding tabs (one on each side) must be bent downwards along the eaves plate. A groove is now formed in the lower area of the equipotential bonding plate.

which a self-drilling screw (see technical data for specifications) is screwed in completely. This connects the Meyer Burger Tiles in the eaves area electrically to the eaves sheet. The eaves flashing must be integrated into the existing equipotential bonding of the building.

This step must be carried out for all Meyer Burger Tiles at the eaves. The electrical connection of the solar roof is then started in the first column.

The electrical connection of the individual Meyer Burger Tile also starts in the eaves. The electrical connection is made horizontally in a row between the adjacent Meyer Burger Tiles.

The two plugs of the adjacent modules must be connected to each other. A proper connection is established when the plugs click audibly into place (slight clicking sound). The potential equalization between the two Meyer Burger Tiles must then be established. To do this, bend the two equipotential bonding lugs of the upper Meyer Burger Tile downwards and screw them to the housing of the Meyer Burger Tile below using two screws (see Figure 19). We recommend bending the equipotential bonding lugs before installing the Meyer Burger Tiles.

The electrical connection of the Meyer Burger Tiles goes from the horizontal row to the row above. The transition from one row to the next row above takes place alternately on the left and right side of a horizontal row. The position of the plugs and sockets changes. We recommend checking the successful electrical connection of the Meyer Burger Tile after every two rows. This is a convenient way of ensuring functionality without the need for extension cables.

This is followed by the electrical installation in accordance with the electrical planning. Once the required number of Meyer Burger Tiles have been connected, the string is connected to the inverter. To inspect the connectors, the overlying Meyer Burger Tiles must be dismantled or loosened in order to replace a Meyer Burger Tile.

#### 4.4 Commissioning

This must be taken into account during commissioning:

- Observe the polarity of the cables and plugs when connecting.
- Check modules, junction boxes, cables and plugs for damage and dirt and only install undamaged components.
- The maximum number of modules that can be connected can be found in the corresponding module data sheet, taking into account the maximum system voltage of the inverter, and must not be exceeded.
- It is recommended to use UV-resistant PV cables.
- These must have a cross-section of at least 4 mm<sup>2</sup> (12 AWG) and be heat-resistant up to at least 90 °C (194 °F).
- The cables must not be routed unprotected over sharp edges and corners.
- Protect the cables from direct sunlight, weather and animal browsing.
- Always connect the cables with a suitable plug of the same type, do not pinch them and protect them from mechanical stress.
- Do not connect different modules or modules with different orientations and inclinations to one string.
- Connect the module string to an inverter suitable for the design.
- The PV system must be integrated into the local lightning protection concept.



The following installation instructions are only intended as a suggestion. The roofing company is responsible for the layout, roofing and safety of the system.



The mechanical installation must be carried out by a master roofer or carpenter.

#### 4.5 Security



The Meyer Burger Tile may only be stepped on when the two upper fastening screws are fully screwed in.

The structure of the Meyer Burger Tile with two glass panes makes it very robust and stable. Nevertheless, walking on the glass surface should be avoided in order to prevent damage to the glass surface.

After completion of the roof, all screws must be screwed in before the roof or the installation aids can be accessed.

The safety instructions must always be observed:

- The work may only be carried out by qualified personnel.
- Do not make any modifications to the Meyer Burger Tile.
- The applicable safety instructions and regulations must be observed.
- The open-circuit voltage ( $V_{OC}$ ) is already present at low illumination.
- Never connect or disconnect modules under load. There is the risk of electric arcs.
- Do not touch the solar modules with bare hands to avoid leaving fingerprints.
- Do not wear any metallic jewelry when working with the modules.
- Use dry and insulated tools and gloves.
- Do not immerse the Meyer Burger Tile in liquids.



Proper equipotential bonding of the system components must be ensured in accordance with the locally applicable guidelines, regulations and standards. BIPV module earthing must be implemented in accordance with national, regional and local guidelines, regulations and standards.

The installation of the earthing connections and the detailed design are described in section 4.3.

#### 4.6 General Notes

To achieve maximum efficiency over the course of a year, we recommend meeting the following criteria:

- All modules that are connected in series in a string must be mounted in the same sky orientation and at the same angle. We recommend connecting strings with different tilt angles to separate MPP inputs on the inverter.
- Flatter roof pitches are also possible. The requirements of the manufacturer of the complementary roof tile used must be taken into account (requirements for the sub-roof).



Roofing, installation and commissioning require a high level of expertise and may only be carried out by personnel with the necessary specialist knowledge.

The local building regulations, accident prevention regulations, the relevant and generally recognized technical regulations as well as guidelines and regulations for occupational safety on roofs, construction and electrical installations must be observed when covering.

## 5. Planning information



The planning of the PV generators may only be carried out by qualified electricians or solar technicians with the appropriate qualifications.

### NOTE

When dimensioning electrical components such as solar cables, plugs, inverters and fuses, a factor of 1.25 must be taken into account for the electrical values (short-circuit current and open-circuit voltage) of the Meyer Burger Tile.

The Meyer Burger Tile is connected horizontally in rows and vertically from row to row. Meyer Burger Tiles must be connected in series so that the voltage increases with each additional Meyer Burger Tile connected in series.

The maximum number of Meyer Burger Tiles connected in series is limited by the maximum system voltage of 1,000 V and the lower input voltage of the inverter.

**NOTE: Please observe the specifications and instructions of the respective inverter manufacturer.**

### Notes on stringing:

Maximum number of modules in series:  
358 pieces (1,000 V per string)

Smallest cable cross-section:  
4 mm<sup>2</sup>

Any additional cable used to connect Meyer Burger Tiles and inverters must be certified according to IEC 62930 and/or DIN EN 50618.

Only identical plugs may be used for connection with Meyer Burger Tile connections.

## 5.1 Stringing examples

The start for the electrical connection is located on the first module in the first row at the bottom right. The corresponding plug is located above the Meyer Burger Tile and is easily accessible.

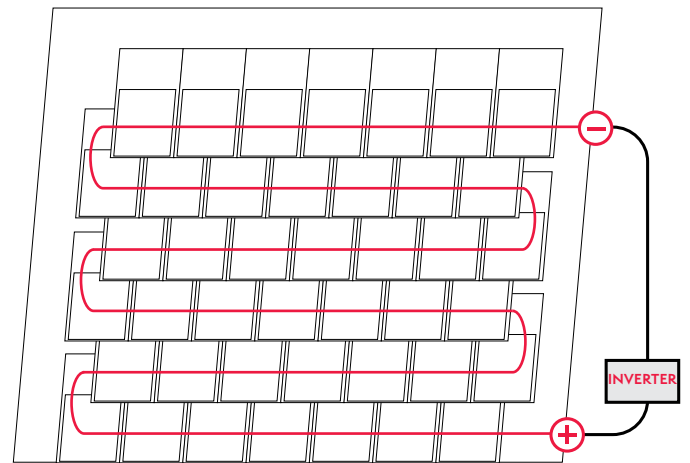


Figure 20: Horizontal cabling of an even number of Meyer Burger Tile rows and connection to an inverter (1 MPP input)

The interconnected rows of individual Meyer Burger Tiles are connected vertically up to the ridge using pre-assembled connection cables. The rows of Meyer Burger Tiles lying on top of each other are connected to each other. The solar cable must also be equipped with a corresponding plug for connecting the Meyer Burger Tiles and a corresponding plug for connecting the inverter.

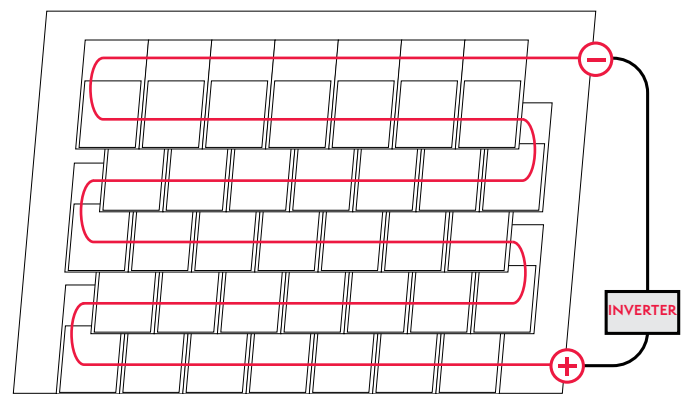


Figure 21: Horizontal wiring of an odd number of Meyer Burger Tile rows and connection to an inverter (1 MPP input)



For the parallel connection of strings, the connection is made to an inverter with a Y connector.

It is recommended to use Y-connectors from the same manufacturer that are used for the connection to the inverter. Please read the operating instructions for the selected inverter.

#### NOTE

When installing the connectors, the instructions of the respective manufacturer and the original tools must be used.

#### NOTE

In a parallel connection, as shown in Figure 24, the number of modules connected in series must be identical and each string must be aligned in the same way and have the same inclination.

#### NOTE

The same plug types (see information in the data sheet and on the Meyer Burger Tile) must be used to connect the strands. If this is not possible, an adapter cable with the original Meyer Burger Tile plug and the selected string plug can be used.

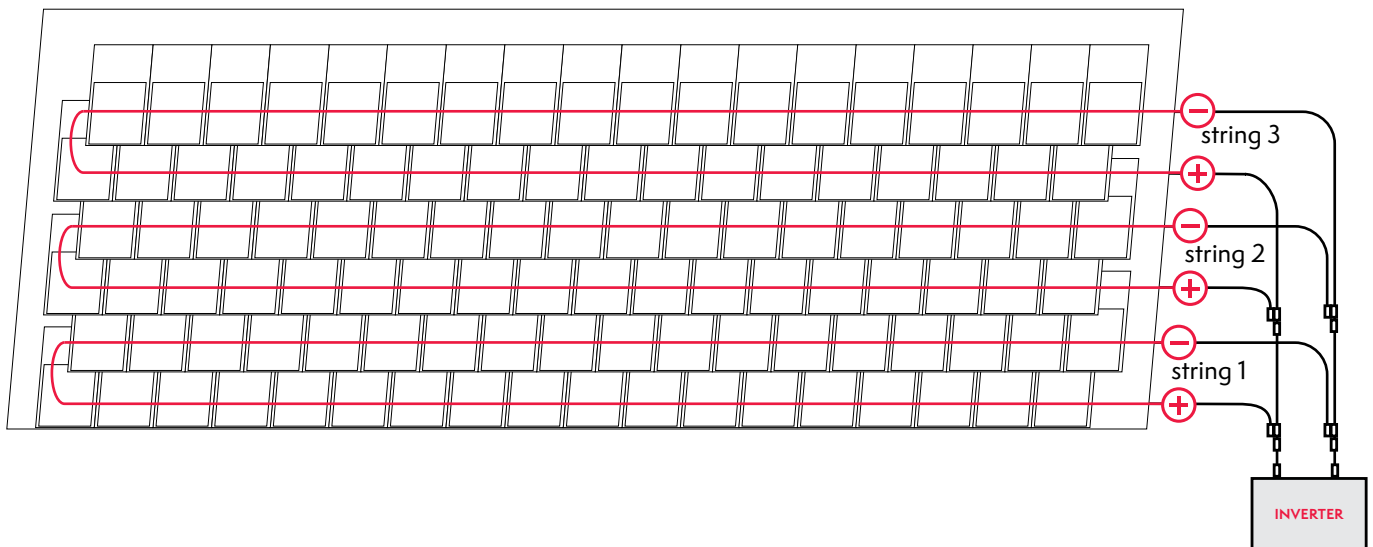


Figure 22: Parallel connection of 3 strings with an even number each from Meyer Burger Tile series and connection to an inverter (1 MPP input)

## 6. Maintenance and Cleaning

### Maintenance:

- Have the system checked regularly (annually) by an installer.
- Check the glass surface, frame and connections for damage.
- Check the electrical components for freedom from corrosion and good connection contact.
- If a module needs to be replaced, follow the instructions for disassembly and assembly. In addition, a module with the same electrical properties should be used.
- After an exceptional weather event (storm, hail, lots of snow, etc.), have the modules checked for damage by an installer.

### Cleaning:

- Do not use abrasive cleaning agents such as grinding powder, steel wool and scrapers.
- Do not use steel cleaning equipment or chemical cleaning agents.
- The use of acids, alkalis, bleaching powder and strong bases must be strictly avoided.
- High-pressure cleaners must not be used for cleaning.
- Care should be taken when cleaning if sand or heavy dirt is present to avoid scratches.
- Cleaning products should be checked for their ingredients before use.
- Glass should never be touched with bare hands as this can leave fingerprints.
- Do not clean the modules until they have cooled down.
- Carefully remove leaves, snow, ice or other debris with a broom.
- Manual cleaning or hand washing can be carried out with alcohol-based cleaners (ethanol, isopropanol). Cleaning agents that are highly acidic or highly alkaline, cleaning agents with hydrofluoric acid (HF) and pure alcohol or pure acetone must not be used. Cleaning can also be carried out with a soap and water solution. Please ensure that all traces of the cleaning agent are removed from the glass surface.
- Use diluted alcohol or diluted acetone.
- Deionized (DI) water can be used liberally for cleaning.
- Use a generous amount of water to remove heavy soiling before wiping the glass surface. Soak stubborn stains if necessary.

## 7. Troubleshooting



In the event of a fault, contact the installer or technical customer service of Meyer Burger (Germany) GmbH.



Under no circumstances should you do this yourself, especially if the glass breaks. There is a risk of electric shock.

You can find contact details at [www.meyerburger.com](http://www.meyerburger.com)

## 8. Dismantling and Recycling



The work may only be carried out by qualified personnel.

- When dismantling the system, the (dis)assembly/installation instructions for the other installed system components must be observed.
- The work may only be carried out by qualified personnel.
- The five safety rules of electrical engineering must be observed.
- The inverter must be switched off and its switch-off time interval must be waited for.
- The PV modules must be disconnected from the inverter and it is essential to ensure and check that the inverter is disconnected from the power supply.
- The plugs may only be disconnected using suitable specialist tools.
- The components must be checked for damage.
- PV modules and substructure must be dismantled using suitable specialist tools.
- PV modules and other components must be packed for safe transportation.
- The local regulations must be observed for disposal.
- In Germany, PV modules are collected at recycling centers and returned by our partner take-e-away. <https://www.take-e-way.de/>

### NOTE

**Meyer Burger Tiles are not glued to the frame, which increases their recyclability. The frame can be easily separated from the Meyer Burger Tile by opening the side screw connection.**

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WEEE-Reg. No. DE 73583316



## Ridge plates

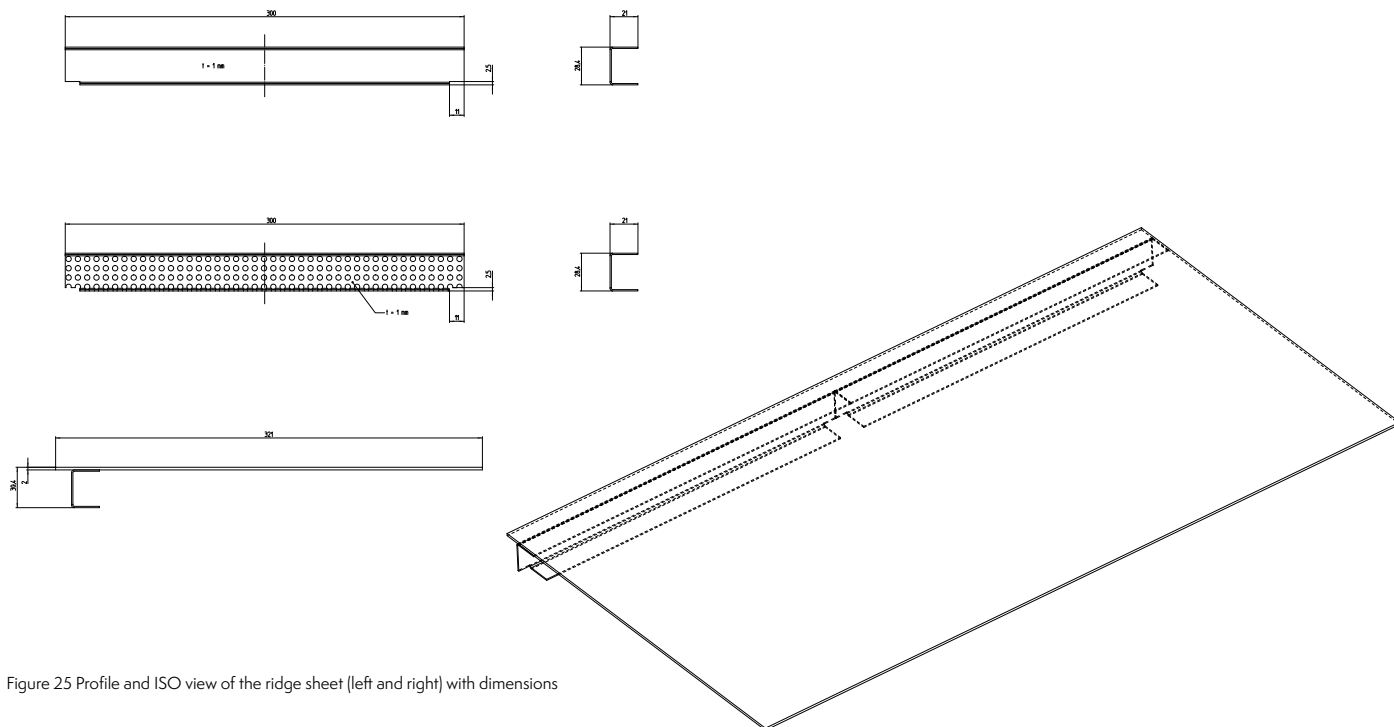


Figure 25 Profile and ISO view of the ridge sheet (left and right) with dimensions

## Upper ridge plate

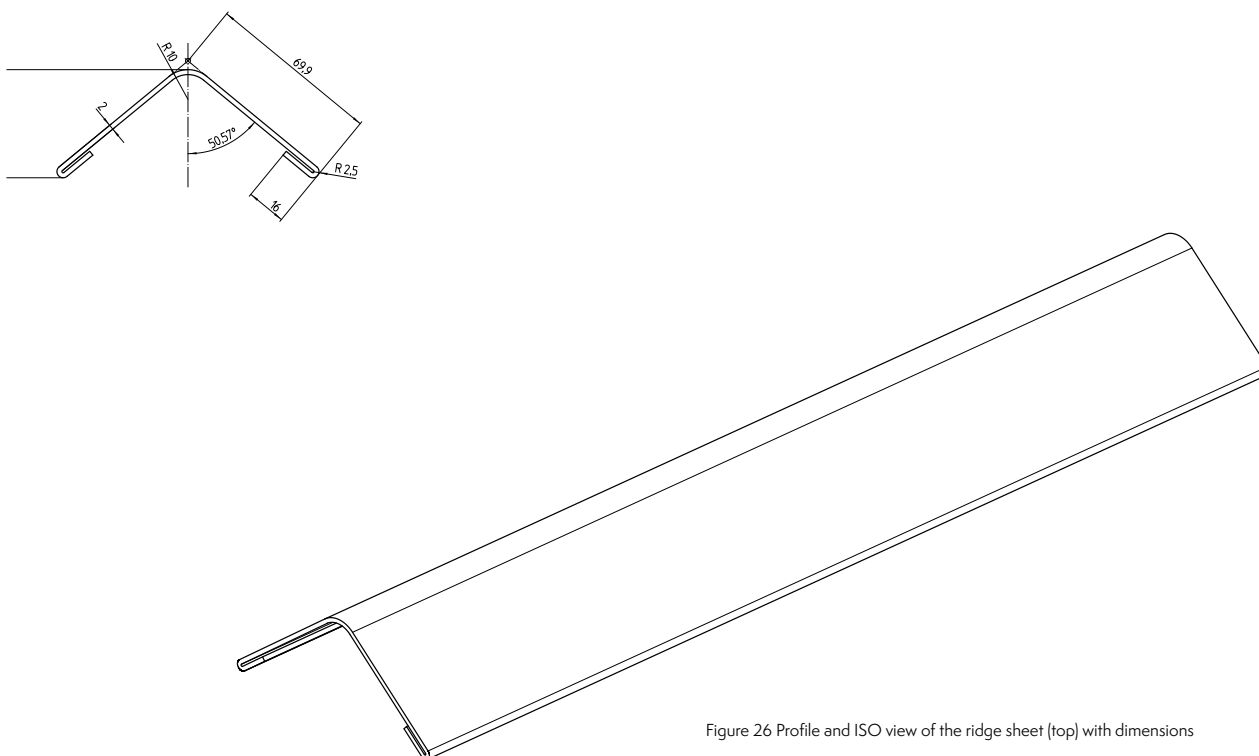


Figure 26 Profile and ISO view of the ridge sheet (top) with dimensions

## Transition plates

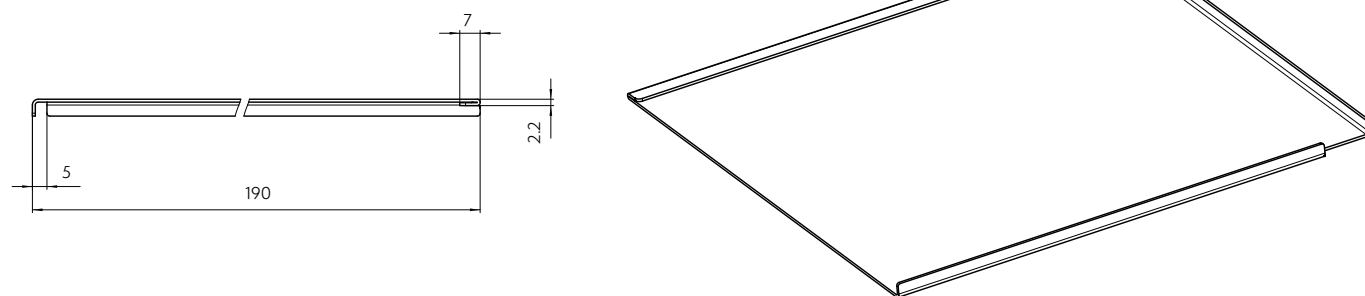


Figure 27 Profile and ISO view of the transition plate on the left-hand side with dimensions

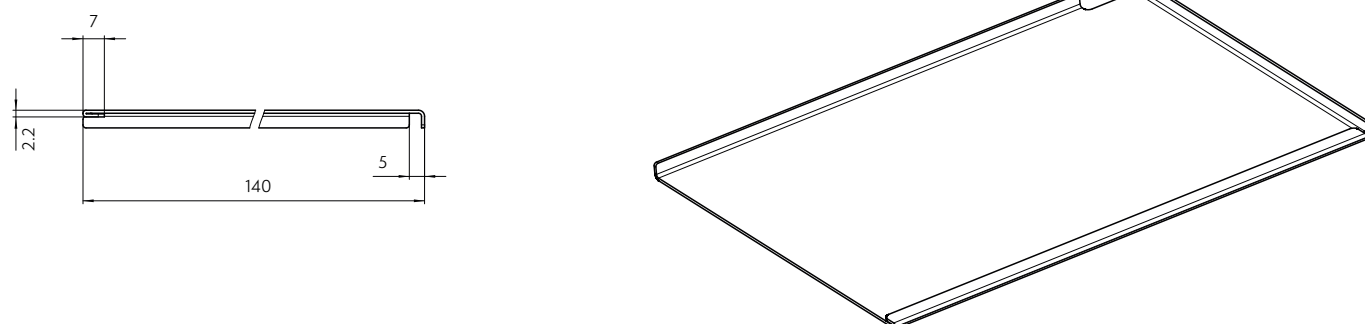


Figure 28 Profile and ISO view of the transition plate on the right-hand side with dimensions