



# STRUCTURES FOR FLAT ROOFS

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## **A. PRODUCT DESCRIPTION**

Basic srl, an Italian company in strong expansion in the sector of the production of accessories for photovoltaics, in recent years has made space by offering a valid alternative to the historical leaders on the market, presenting an innovative product: Sun Ballast, a structure for modules on a flat roof.

The products of the Sun Ballast range are the result of years of direct experience of the creators themselves, who, clashing with the real problems of installation and assistance, were pushed to search for new solutions, setting themselves the prerogative of creating a system capable of combining safety, and practicality, in order to facilitate and harmonize Designers, Installers and Maintenance Technicians. Basic srl supplies small and large companies covering the whole national territory in very short delivery times at low costs.



**Sun Ballast from English “Equilibrium of the sun”**

**Sun Ballast performs the function of structure and ballast**

**Without Profiles, nothing to assemble, zero holes in the cover**

**Simple and economical, balanced for loads on the structure and wind resistance**



Sun Ballast, Innovative, efficient and modular, is the ideal support for photovoltaic panels on flat roofs, clay, asphalt and pavements with a maximum slope of 5°. It can be easily adapted to panels of any size and type. With the appearance of a wedge, Sun Ballast is structured as a single piece, not only as a support but also as a ballast for the panel. The system does not require the use of aluminum profiles or other accessories that involve a pre-assembly phase, simplicity is the key feature from which the technical and economic advantages of Sun Ballast arise. Sun Ballast actually reduces installation times by up to 70% compared to traditional solutions. It is a modular system both in terms of inclination degrees and weight, thanks to the 34 models in the Sun Ballast range: 0°.K, 3°.K, 5°, 5°.2, 5°.3, 5°.4, 5°.5, 5°.6, 8°.K, 10°, 11°.K, 11°.2, 11°.3, 15°, 20°, 30°.1, 35° which allow to lay the modules in the various possible combinations, horizontal, vertical, east west.

The modulation of the weight is done thanks to the possibility of doubling the weights by coupling them or by inserting additional weights, this gives the great advantage of going to insert the weights only in the most appropriate areas without unnecessarily loading the cover. Basic srl is able to offer a free consultancy service in the preventive evaluation phase, to help its customers and / or designers to orient themselves towards a considered choice, making available and comparing their own technical skills on the subject.

## Materiali resistenti

Il materiale principale di Sun Ballast, il cemento, permette una bassissima usura nel tempo e la capacità di resistere anche alle perturbazioni più intense e a diverse condizioni climatiche. Così un unico Sun Ballast può resistere a varie installazioni successive.

In addition to the structure, the Sun Ballast assembly itself is simple and immediate and can be easily placed at the base of the solar panel without the need for additional elements that could damage the roof or affect its waterproofing. The Sun Ballast support is enriched in the structure with waterproofing products that enhance its resistance characteristics over time.



## Low costs

The installation costs of photovoltaic panels are generally high also due to the presence of various accessories and junction elements. Sun Ballast, thanks to the minimal structure and the materials of which it is constituted, does not involve the use of additional accessories for assembly, which, in many cases, has a higher cost than that of the support product itself. With Sun Ballast it will no longer be necessary to change the mounting platform of the panels or add elements but it will be enough to adapt the modular characteristics of Sun Ballast to the type of panel.



### **A success in line with the times**

The success of the new product is evident. As confirmed by the sales figures, Sun Ballast is already recording excellent results and is in line with the best performances recorded for the products in its category. The reasons? Reliability, safety and efficiency are just some of the reasons that lead installers and retailers from all over Europe to buy Sun Ballast. But these are not the only reasons. For Sun Ballast, the company applies the main measures to make assembly easier and more effective, which also make it a product with a low environmental impact.

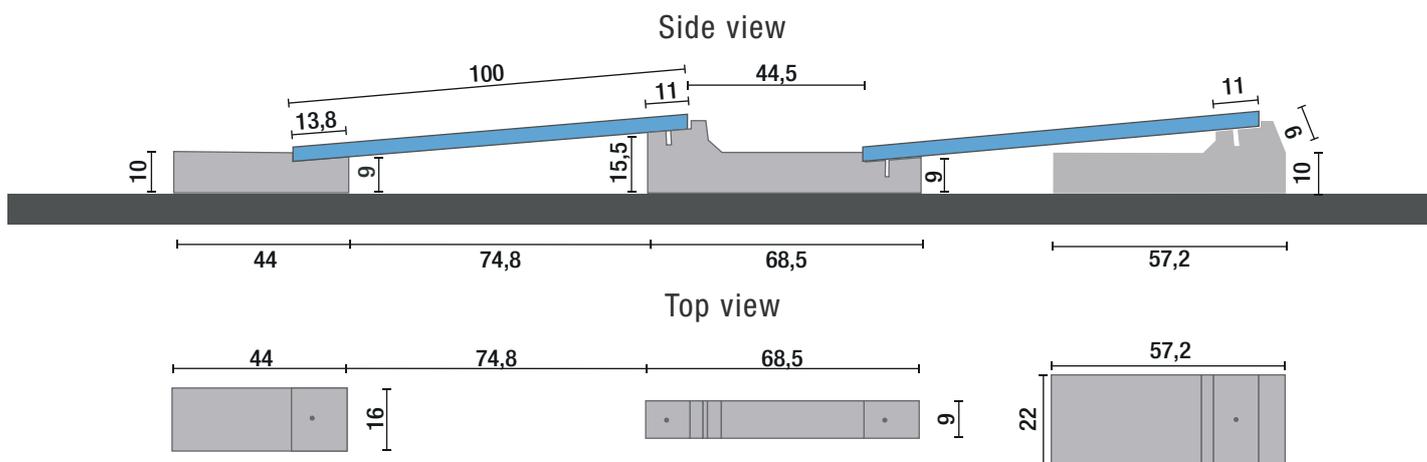
In fact, Sun Ballast is also part of the broad and modern concept of environmental sustainability, given the very few components it is made of and which are therefore subsequently to be disposed of and also given its resistance over time. So the Sun Ballast support can increase the same functionality and performance of the photovoltaic panels, thanks to its support function and the possibility of orienting it in the best way.

## B. SUN BALLAST TECHNICAL DATA SHEET

### 5° CONNECT SYSTEM

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	5°	<b>Distance of modules</b>	44,5 cm
<b>Module positioning</b>	Horizontal	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING



#### Front Ballast Art. 23005.CF

<b>Ballast weight</b>	20 kg	<b>Pallet dimensions</b>	90 cm x 98 cm, h= 39 cm
<b>Quantity for pallet</b>	36 pieces	<b>Pallet weight</b>	720 kg

#### Central Ballast Art. 23005.CR

<b>Ballast weight</b>	16 kg	<b>Pallet dimensions</b>	72 cm x 58 cm, h= 81 cm
<b>Quantity for pallet</b>	32 pieces	<b>Pallet weight</b>	512 kg

#### Terminal Ballast Art. 23005.CRT

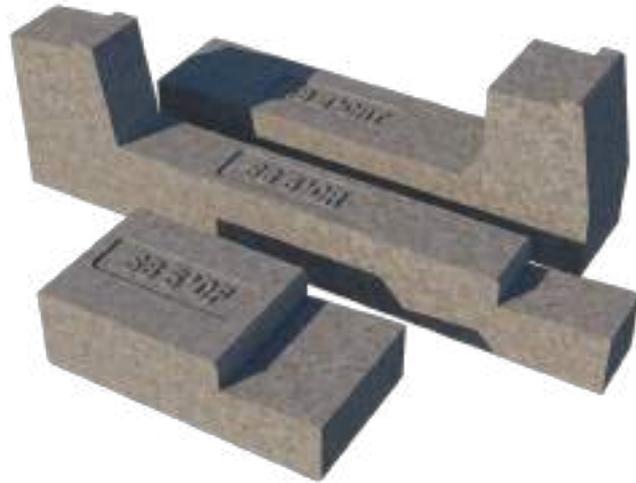
<b>Ballast weight</b>	35 kg	<b>Pallet dimensions</b>	58 cm x 72 cm, h= 75 cm
<b>Quantity for pallet</b>	20 pieces	<b>Pallet weight</b>	700 kg

#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm.
- Avoid screwdrivers impulse.
- It is recommended to also consult the information indicated in the assembly instructions of the panel manufacturer.

#### Notes

- For dimensions of the short side panel greater than 1m, it is advisable to consult our technical office.
- For any information visit [www.sunballast.it](http://www.sunballast.it) or contact the technical office.

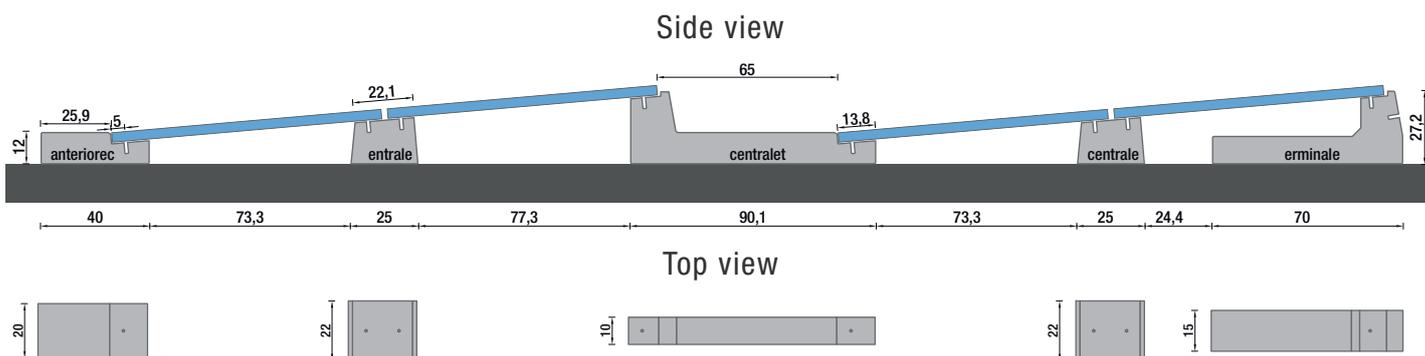


## B. SUN BALLAST TECHNICAL DATA SHEET

### 5° SISTEMA CONNECT A VELA

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	5°	<b>Distance of modules</b>	65 cm
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL & VERTICAL PANEL LAYING



#### Front Ballast Art. 23005.CF

<b>Ballast weight</b>	20 kg	<b>Dimensioni bancale</b>	98 cm x 90 cm, h= 39 cm
<b>Quantity for pallet</b>	36 pieces	<b>Peso bancale</b>	720 kg

#### Central Ballast Art. 23005.CRC

<b>Ballast weight</b>	20 kg	<b>Pallet dimensions</b>	80 cm x 80 cm, h= 77 cm
<b>Quantity for pallet</b>	32 pieces	<b>Pallet weight</b>	640 kg

#### Central Ballast Art. 23005.CRR

<b>Ballast weight</b>	28 kg	<b>Pallet dimensions</b>	90 cm x 98 cm, h= 45 cm
<b>Quantity for pallet</b>	20 pieces	<b>Pallet weight</b>	560 kg

#### Terminal Ballast Art. 23005.CRTT

<b>Ballast weight</b>	33 kg	<b>Pallet dimensions</b>	70 cm x 98 cm, h= 82 cm
<b>Quantity for pallet</b>	24 pieces	<b>Pallet weight</b>	792 kg

#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm.
- Avoid screwdrivers impulse.
- It is recommended to also consult the information indicated in the assembly instructions of the panel manufacturer.

#### Notes

- For dimensions of the short side panel greater than 1m, it is advisable to consult our technical office.
- For any information visit [www.sunballast.it](http://www.sunballast.it) or contact the technical office.

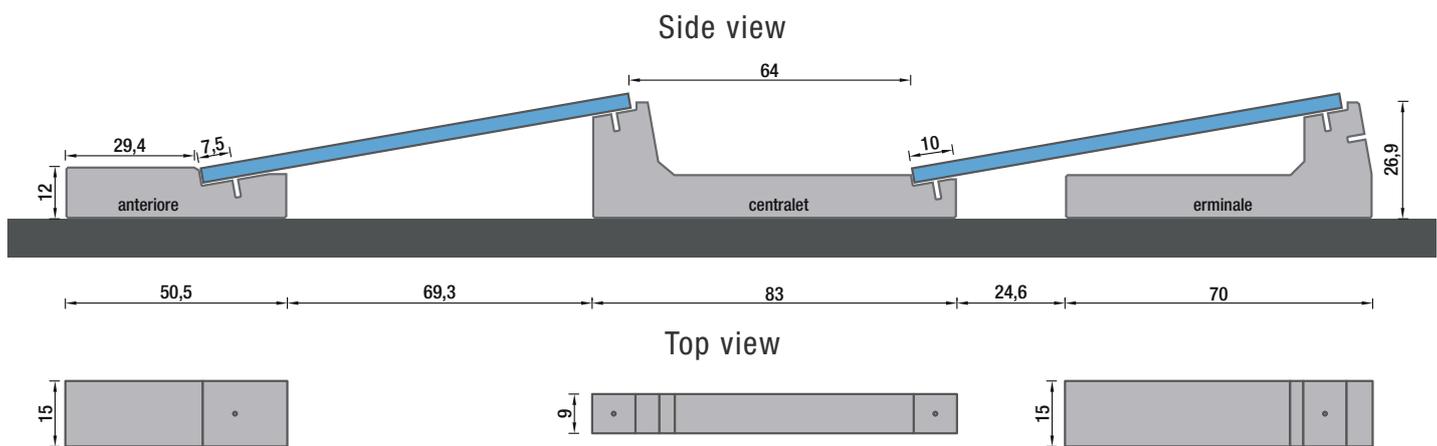


## B. SUN BALLAST TECHNICAL DATA SHEET

### 10° SISTEMA CONNECT

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	10°	<b>Distance of modules</b>	64 cm
<b>Module positioning</b>	Horizontal	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING



#### Front Ballast Art. 23010.CF

<b>Ballast weight</b>	20 kg	<b>Pallet dimensions</b>	98 cm x 90 cm, h= 39 cm
<b>Quantity for pallet</b>	30 pieces	<b>Pallet weight</b>	600 kg

#### Central Ballast Art. 23010.CR

<b>Ballast weight</b>	22 kg	<b>Pallet dimensions</b>	80 cm x 80 cm, h= 63 cm
<b>Quantity for pallet</b>	24 pieces	<b>Pallet weight</b>	528 kg

#### Terminal Ballast Art. 23010.CRT

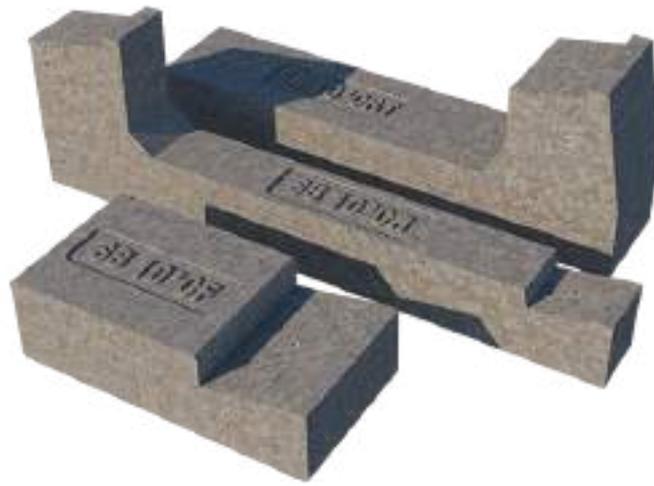
<b>Ballast weight</b>	33 kg	<b>Pallet dimensions</b>	75 cm x 65 cm, h= 69 cm
<b>Quantity for pallet</b>	20 pieces	<b>Pallet weight</b>	660 kg

#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm.
- Avoid screwdrivers impulse.
- It is recommended to also consult the information indicated in the assembly instructions of the panel manufacturer.

#### Notes

- For dimensions of the short side panel greater than 1m, it is advisable to consult our technical office.
- For any information visit [www.sunballast.it](http://www.sunballast.it) or contact the technical office.

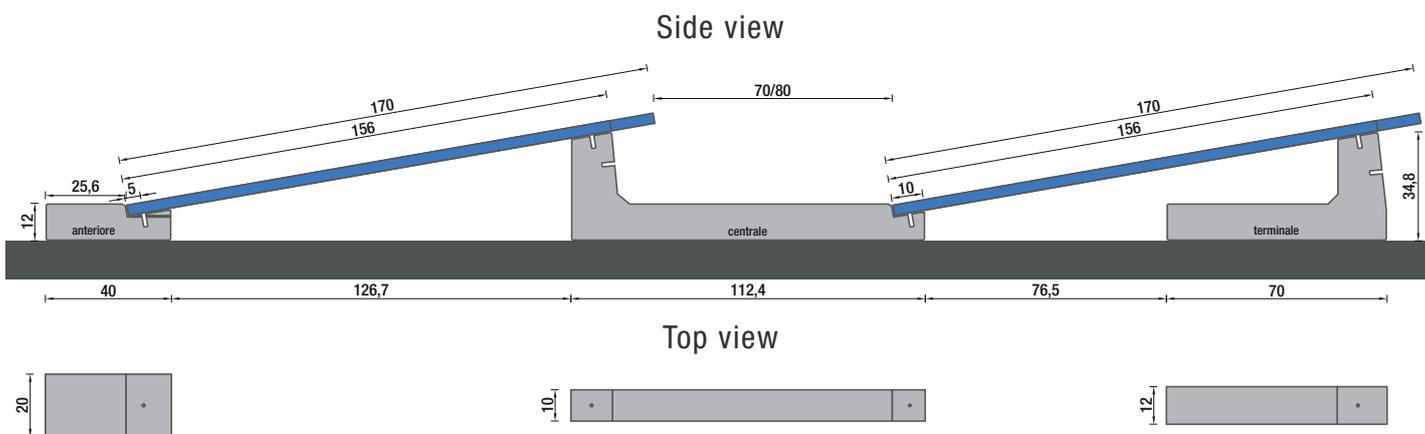


## B. SUN BALLAST TECHNICAL DATA SHEET

### 10° SISTEMA CONNECT VERTICALE

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	10°	<b>Distance of modules</b>	Da 70 cm a 80 cm
<b>Module positioning</b>	Vertical	<b>PV panel size</b>	170 cm x 100 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING



#### Front Ballast Art. 23010.CF

<b>Ballast weight</b>	20 kg	<b>Pallet dimensions</b>	90 cm x 98 cm, h= 39 cm
<b>Quantity for pallet</b>	30 pieces	<b>Pallet weight</b>	600 kg

#### Central Ballast Art. 23010.CRV

<b>Ballast weight</b>	38 kg	<b>Pallet dimensions</b>	53 cm x 106 cm, h= 69 cm
<b>Quantity for pallet</b>	12 pieces	<b>Pallet weight</b>	456 kg

#### Terminal Ballast Art. 23010.CRTV

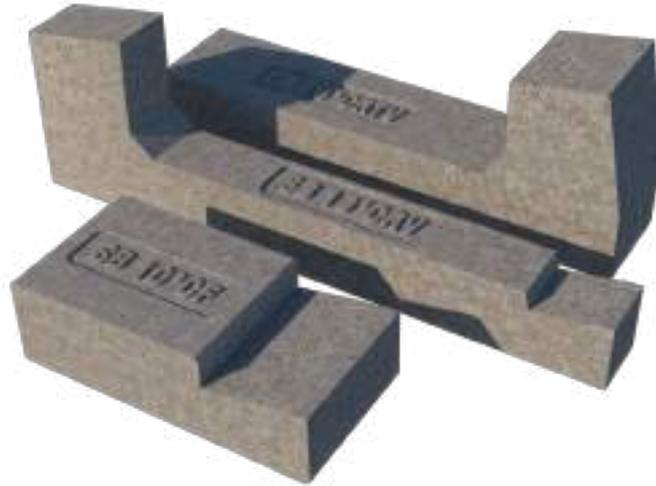
<b>Ballast weight</b>	33 kg	<b>Pallet dimensions</b>	70 cm x 98 cm, h= 57 cm
<b>Quantity for pallet</b>	16 pieces	<b>Pallet weight</b>	528 kg

#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm.
- Avoid screwdrivers impulse.
- It is recommended to also consult the information indicated in the assembly instructions of the panel manufacturer.

#### Notes

- For dimensions of the short side panel greater than 1m, it is advisable to consult our technical office.
- For any information visit [www.sunballast.it](http://www.sunballast.it) or contact the technical office.

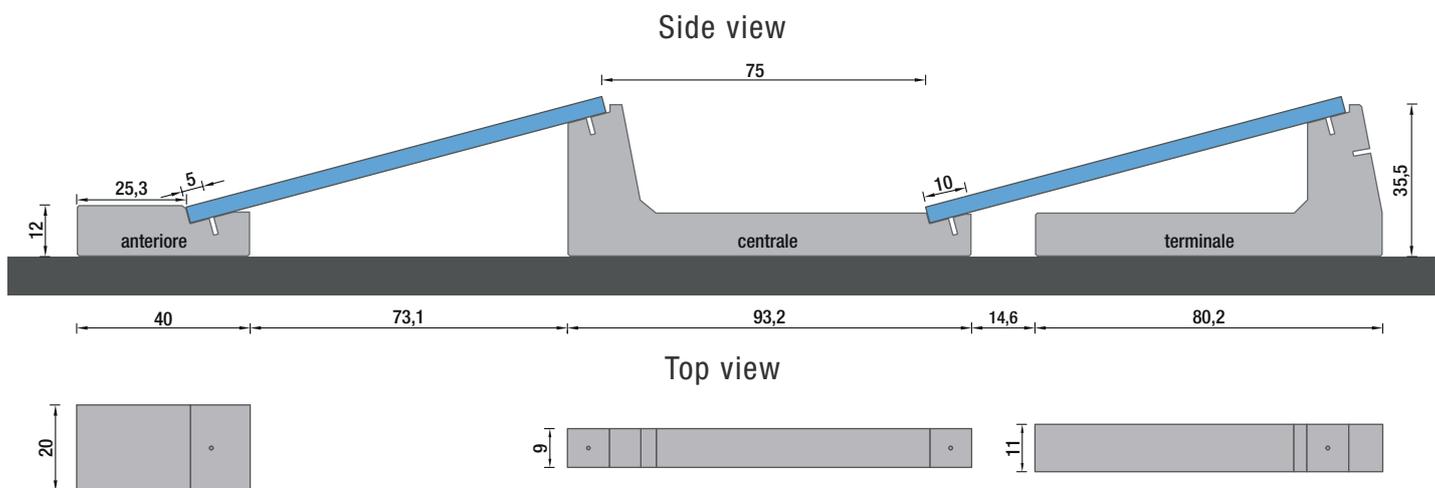


## B. SUN BALLAST TECHNICAL DATA SHEET

### 15° SISTEMA CONNECT

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	15°	<b>Distance of modules</b>	74 cm
<b>Module positioning</b>	Horizontal	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING



#### Front Ballast Art. 23015.CF

<b>Ballast weight</b>	20 kg	<b>Pallet dimensions</b>	98 cm x 90 cm, h= 41 cm
<b>Quantity for pallet</b>	30 pieces	<b>Pallet weight</b>	600 kg

#### Central Ballast Art. 23015.CR

<b>Ballast weight</b>	28 kg	<b>Pallet dimensions</b>	90 cm x 98 cm, h= 54 cm
<b>Quantity for pallet</b>	20 pieces	<b>Pallet weight</b>	560 kg

#### Terminal Ballast Art. 23015.CRT

<b>Ballast weight</b>	30 kg	<b>Pallet dimensions</b>	86 cm x 86 cm, h= 53 cm
<b>Quantity for pallet</b>	24 pieces	<b>Pallet weight</b>	720 kg

#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm.
- Avoid screwdrivers impulse.
- It is recommended to also consult the information indicated in the assembly instructions of the panel manufacturer.

#### Notes

- For dimensions of the short side panel greater than 1m, it is advisable to consult our technical office.
- For any information visit [www.sunballast.it](http://www.sunballast.it) or contact the technical office.

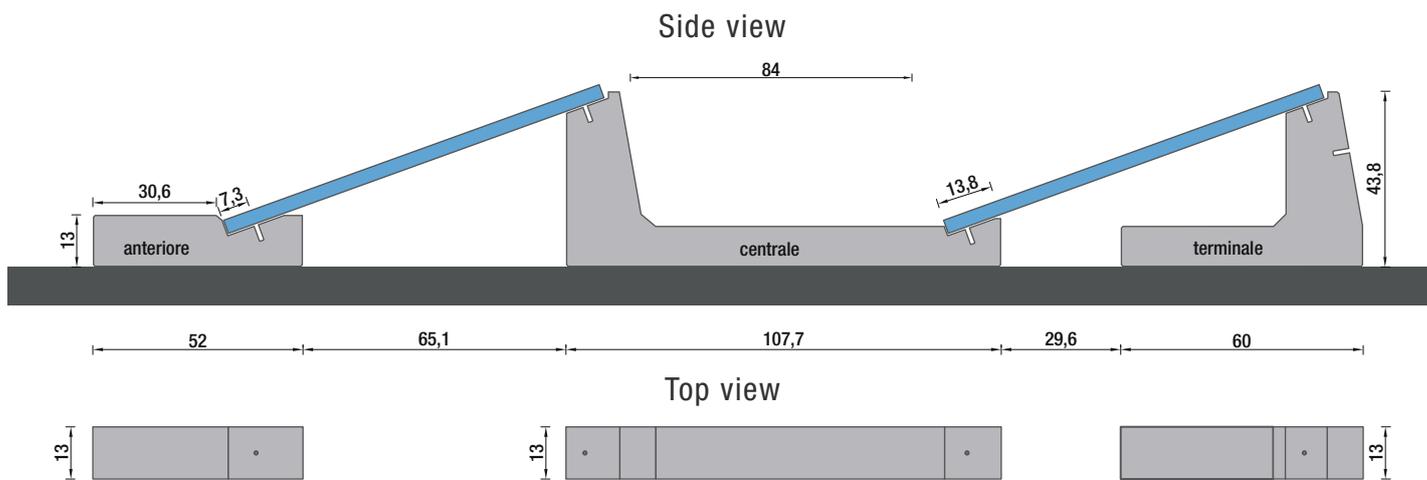


## B. SUN BALLAST TECHNICAL DATA SHEET

### 20° SISTEMA CONNECT

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	20°	<b>Distance of modules</b>	84 cm
<b>Module positioning</b>	Horizontal	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING



#### Front Ballast Art. 23020.CF

<b>Ballast weight</b>	21 kg	<b>Pallet dimensions</b>	98 cm x 90 cm, h= 42 cm
<b>Quantity for pallet</b>	30 pieces	<b>Pallet weight</b>	630 kg

#### Central Ballast Art. 23020.CR

<b>Ballast weight</b>	34 kg	<b>Pallet dimensions</b>	33 cm x 106 cm, h= 81 cm
<b>Quantity for pallet</b>	16 pieces	<b>Pallet weight</b>	544 kg

#### Terminal Ballast Art. 23020.CRT

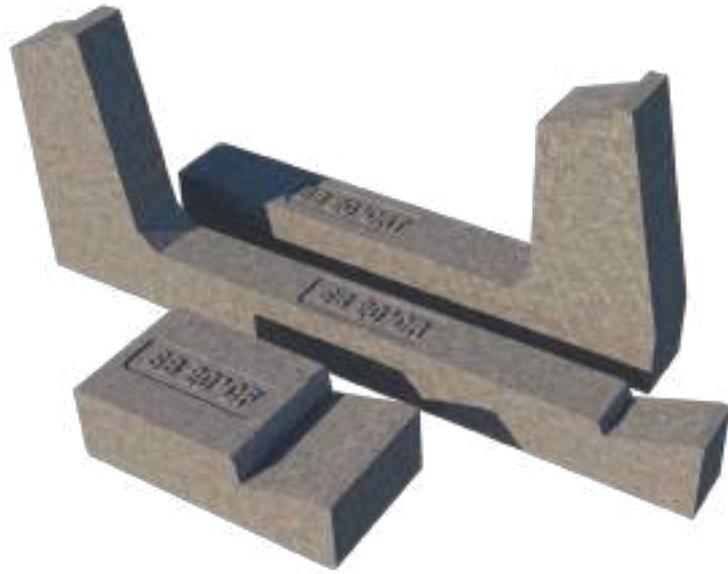
<b>Ballast weight</b>	35 kg	<b>Pallet dimensions</b>	58 cm x 70 cm, h= 75 cm
<b>Quantity for pallet</b>	16 pieces	<b>Pallet weight</b>	560 kg

#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm.
- Avoid screwdrivers impulse.
- It is recommended to also consult the information indicated in the assembly instructions of the panel manufacturer.

#### Notes

- For dimensions of the short side panel greater than 1m, it is advisable to consult our technical office.
- For any information visit [www.sunballast.it](http://www.sunballast.it) or contact the technical office.

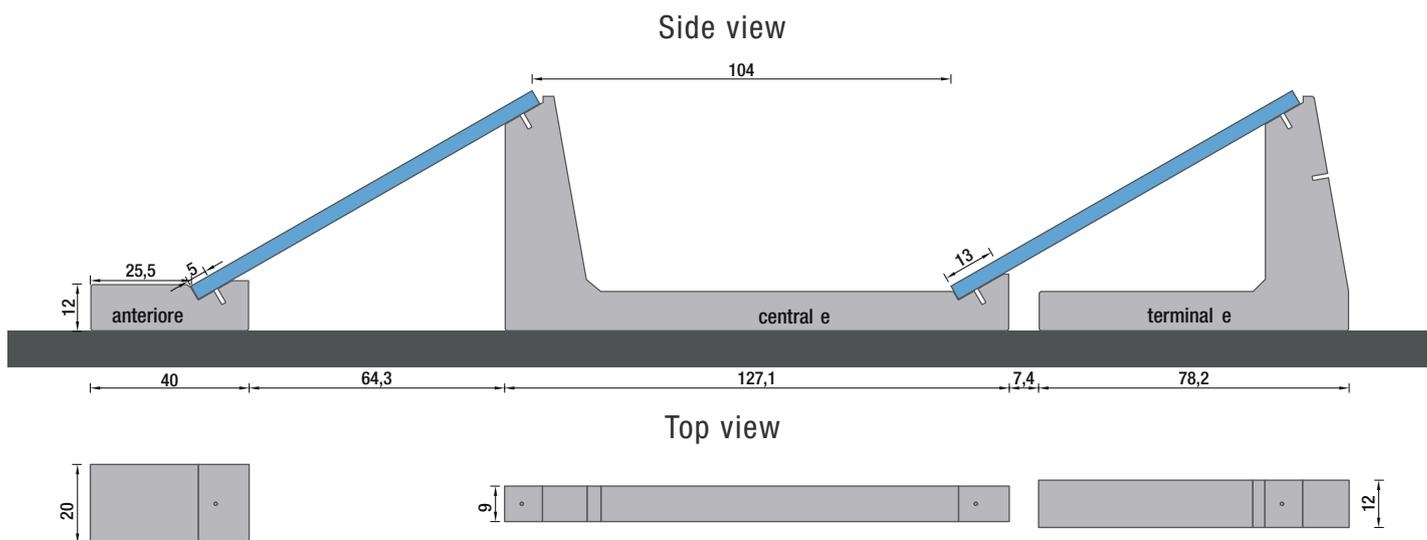


## B. SUN BALLAST TECHNICAL DATA SHEET

### 30° SISTEMA CONNECT

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	30°	<b>Distance of modules</b>	104 cm
<b>Module positioning</b>	Horizontal	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING



#### Front Ballast Art. 23030.CF

<b>Ballast weight</b>	21.5 kg	<b>Pallet dimensions</b>	98 cm x 90 cm, h= 48 cm
<b>Quantity for pallet</b>	36 pieces	<b>Pallet weight</b>	774 kg

#### Central Ballast Art. 23030.CR

<b>Ballast weight</b>	45 kg	<b>Pallet dimensions</b>	125 cm x 69 cm, h= 54 cm
<b>Quantity for pallet</b>	10 pieces	<b>Pallet weight</b>	450 kg

#### Terminal Ballast Art. 23030.CRT

<b>Ballast weight</b>	44 kg	<b>Pallet dimensions</b>	75 cm x 65 cm, h= 81 cm
<b>Quantity for pallet</b>	12 pieces	<b>Pallet weight</b>	528 kg

#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm.
- Avoid screwdrivers impulse.
- It is recommended to also consult the information indicated in the assembly instructions of the panel manufacturer.

#### Notes

- For dimensions of the short side panel greater than 1m, it is advisable to consult our technical office.
- For any information visit [www.sunballast.it](http://www.sunballast.it) or contact the technical office.



## B. SUN BALLAST TECHNICAL DATA SHEET

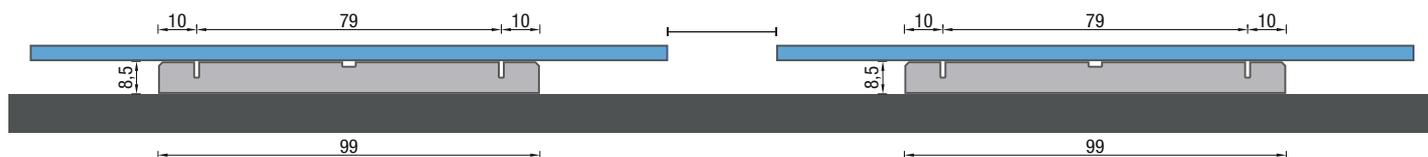
### Ballast 0°.K - Art. 23000.K

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	0°	<b>Quantity for pallet</b>	18 pieces
<b>Ballast weight</b>	30 kg	<b>Pallet dimensions</b>	90 cm x 98 cm, h = 35 cm
<b>Distance of modules</b>	Starting from 0 cm	<b>Pallet weight</b>	540 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

Side view

Distance between panels starting from 0 cm



Top view



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view

Distance between panels starting from 0 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



## B. SUN BALLAST TECHNICAL DATA SHEET

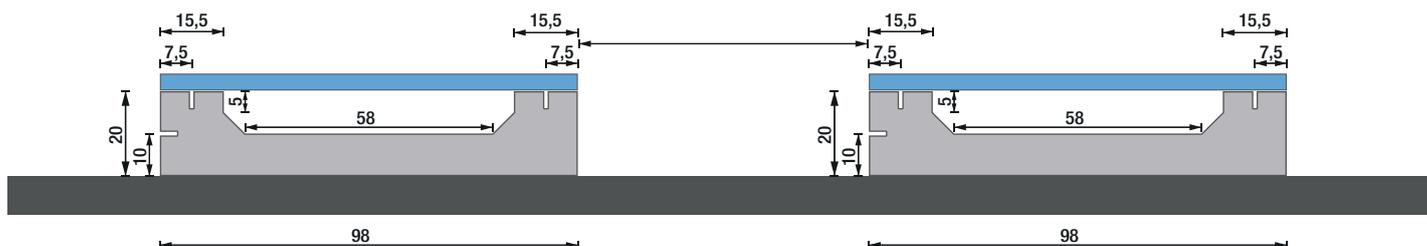
### Ballast 0°.H20 - Art. 23000.H20

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	0°	<b>Quantity for pallet</b>	18 pieces
<b>Ballast weight</b>	45 kg	<b>Pallet dimensions</b>	90 cm x 98 cm, h = 70 cm
<b>Distance of modules</b>	Starting from 0 cm	<b>Pallet weight</b>	810 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 100 cm

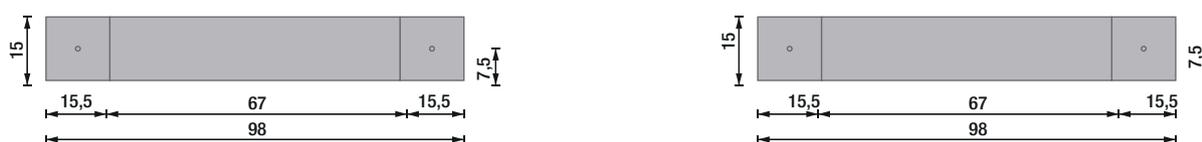
#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

##### Side view

Distance between panels starting from 0 cm



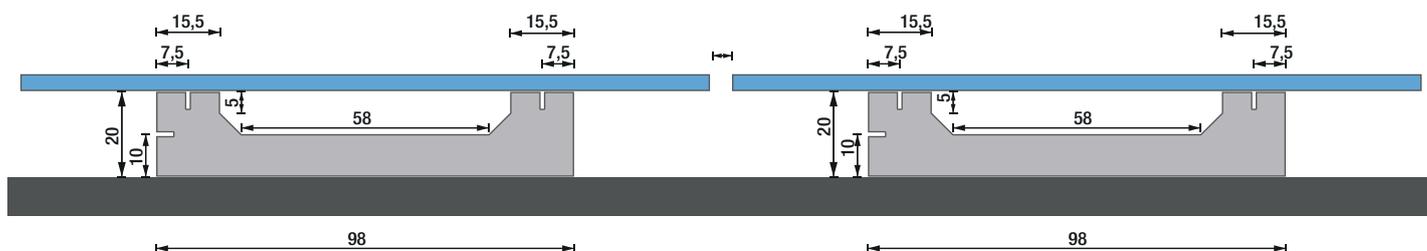
##### Top view



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

##### Side view

Distance between panels starting from 0 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



## B. SUN BALLAST TECHNICAL DATA SHEET

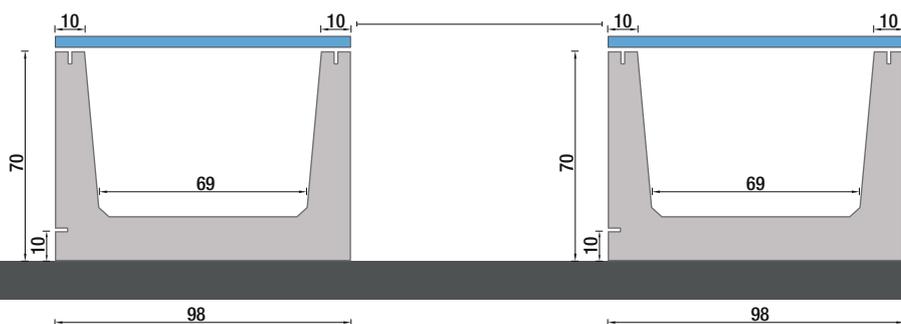
### Ballast 0°.HI - Art. 23000.HI

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	0°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	67 kg	<b>Pallet dimensions</b>	70 cm x 98 cm, h = 109 cm
<b>Distance of modules</b>	Starting from 0 cm	<b>Pallet weight</b>	670 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 100 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view

Distance between panels starting from 0 cm



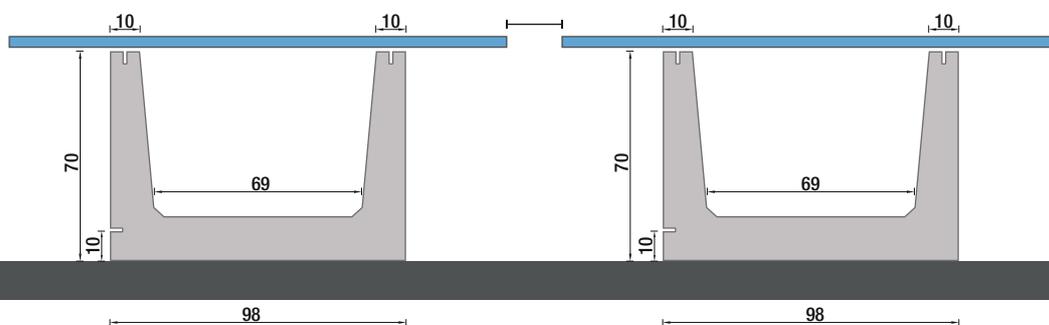
Top view



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

Side view

Distance between panels starting from 0 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



## B. SUN BALLAST TECHNICAL DATA SHEET

### Ballast 3°.K - Art. 23003.K

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	3°	<b>Quantity for pallet</b>	16 pieces
<b>Ballast weight</b>	41 kg	<b>Pallet dimensions</b>	90 cm x 98 cm, h = 46 cm
<b>Distance of modules</b>	Starting from 15 cm to 45 cm	<b>Pallet weight</b>	656 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view

Distance between panels starting from 15 cm to 45 cm



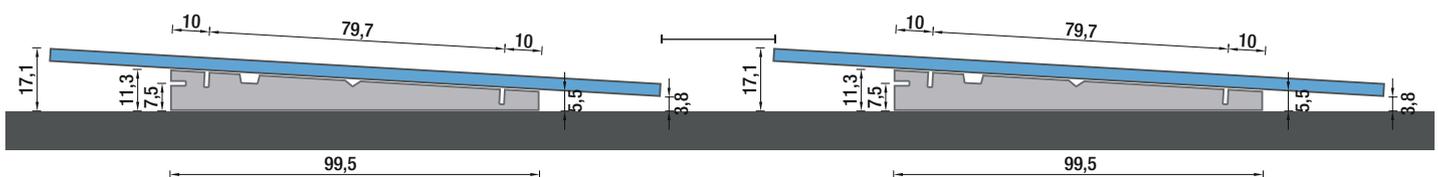
Top view



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

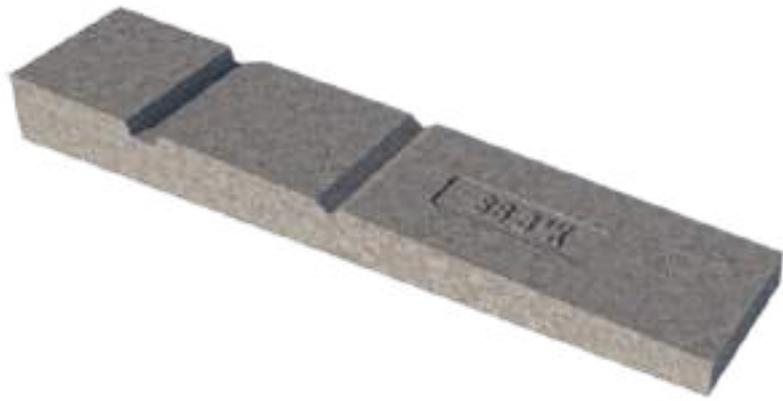
Side view

Distance between panels starting from 15 cm to 45 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



## B. SUN BALLAST TECHNICAL DATA SHEET

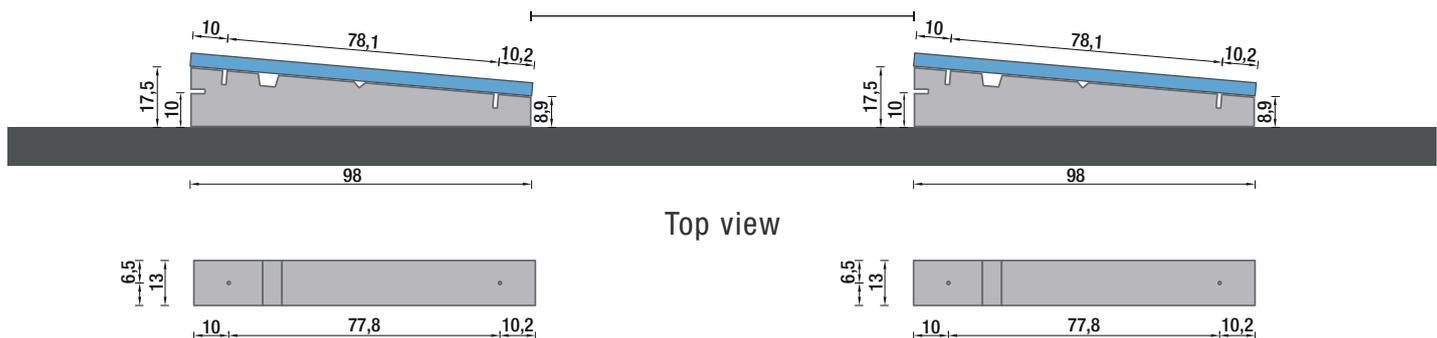
### Ballast 5° - Art. 23005

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	5°	<b>Quantity for pallet</b>	16 pieces
<b>Ballast weight</b>	39 kg	<b>Pallet dimensions</b>	90 cm x 98 cm, h = 46 cm
<b>Distance of modules</b>	Starting from 40 cm to 80 cm	<b>Pallet weight</b>	624 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view

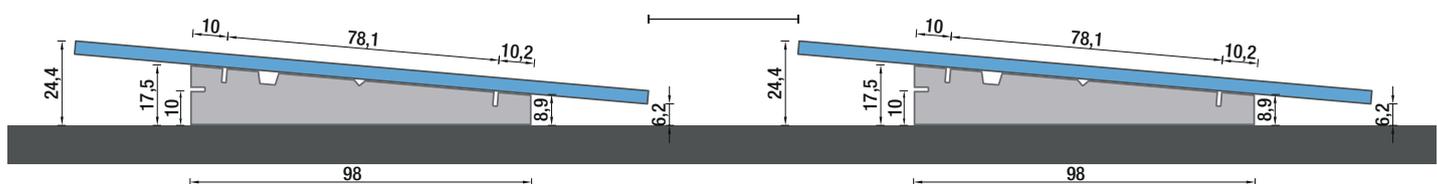
Distance between panels starting from 40 cm to 80 cm



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

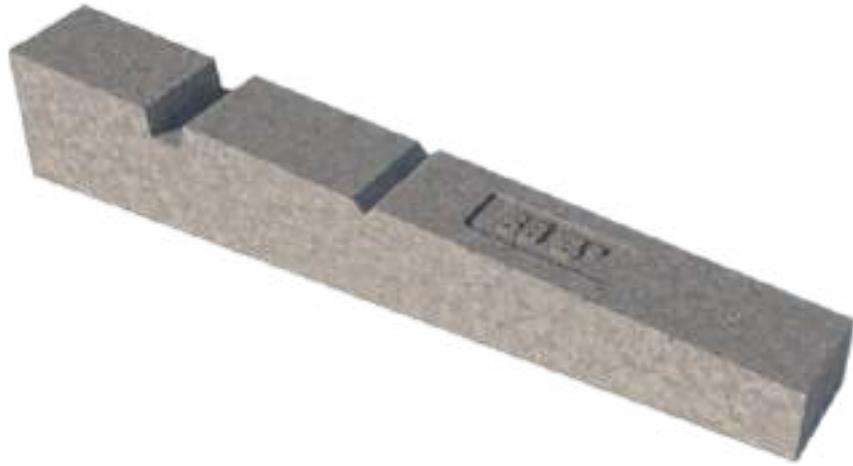
Side view

Distance between panels starting from 40 cm to 80 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



**5° SINGLE ROW SYSTEM**



**5° SAIL-SHAPED SYSTEM**



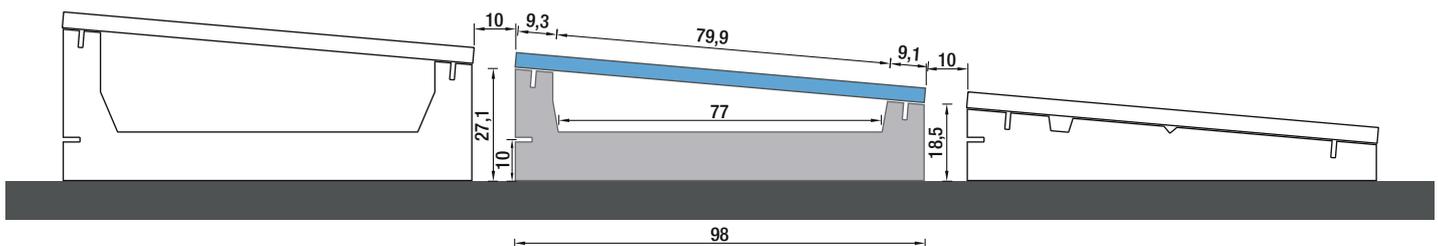
## B. SUN BALLAST TECHNICAL DATA SHEET

### Ballast 5°.2 - Art. 23005.2

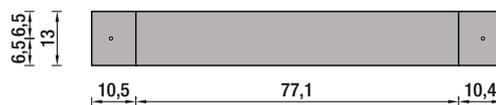
<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	5°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	41 kg	<b>Pallet dimensions</b>	58 cm x 96 cm, h = 74 cm
<b>Distance of modules</b>	Starting from 40 cm to 80 cm	<b>Pallet weight</b>	410 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view



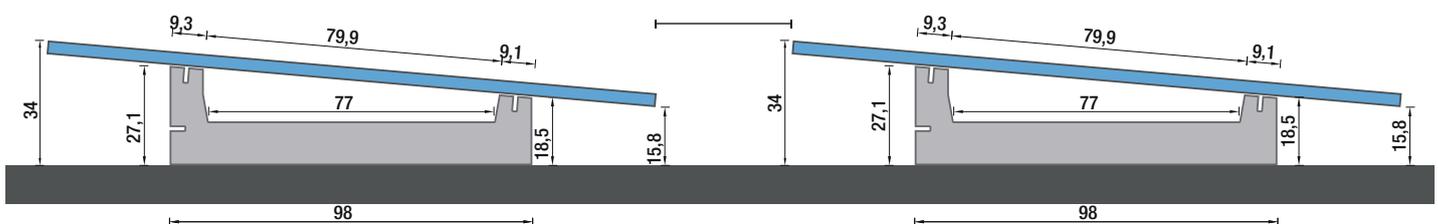
Top view



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

Side view

Distance between panels starting from 40 cm to 80 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



**5° SINGLE ROW SYSTEM**



**5° SAIL-SHAPED SYSTEM**



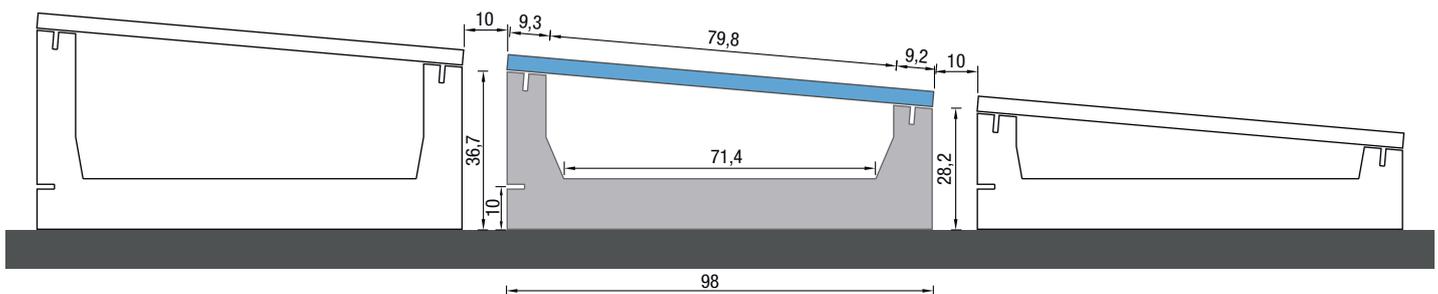
## B. SUN BALLAST TECHNICAL DATA SHEET

### Ballast 5°.3 - Art. 23005.3

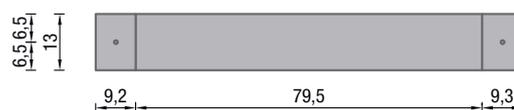
<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	5°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	49 kg	<b>Pallet dimensions</b>	70 cm x 98 cm, h = 74 cm
<b>Distance of modules</b>	Starting from 40 cm to 80 cm	<b>Pallet weight</b>	490 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view



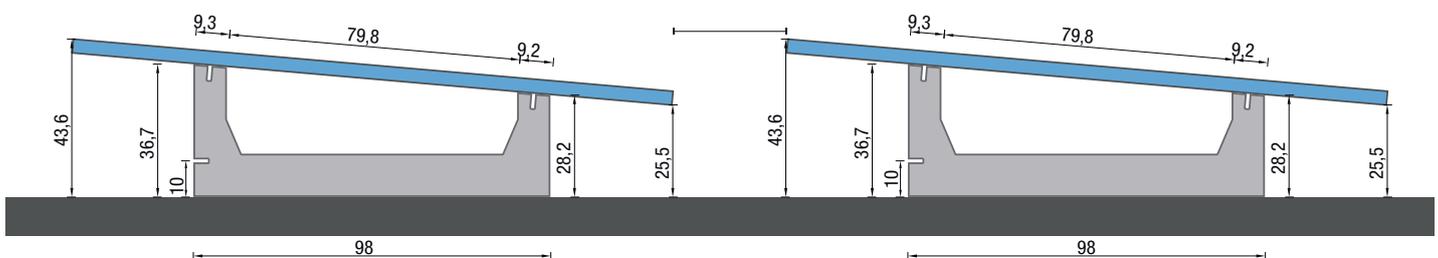
Top view



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

Side view

Distance between panels starting from 40 cm to 80 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



**5° SINGLE ROW SYSTEM**



**5° SAIL-SHAPED SYSTEM**



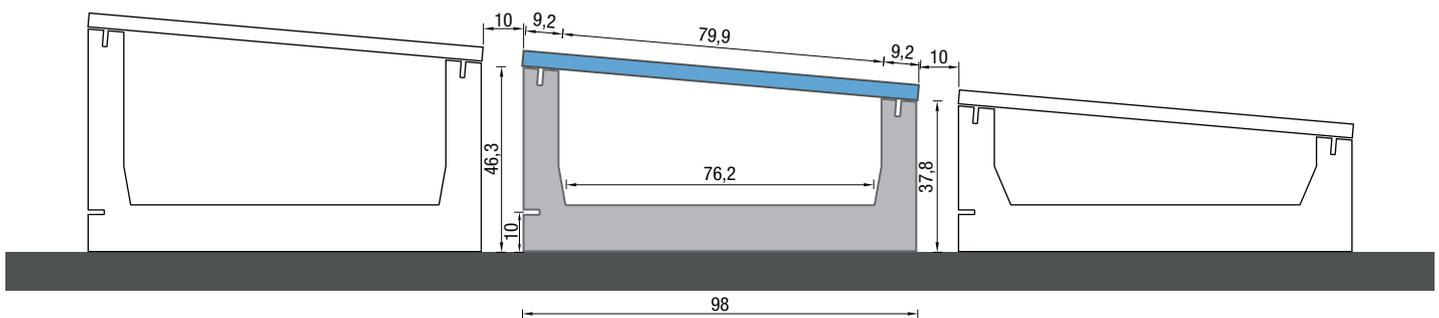
## B. SUN BALLAST TECHNICAL DATA SHEET

### Ballast 5°.4 - Art. 23005.4

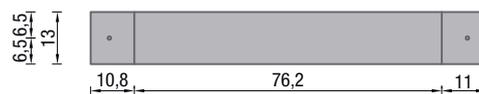
<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	5°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	53 kg	<b>Pallet dimensions</b>	90 cm x 98 cm, h = 74 cm
<b>Distance of modules</b>	Starting from 40 cm to 80 cm	<b>Pallet weight</b>	530 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view



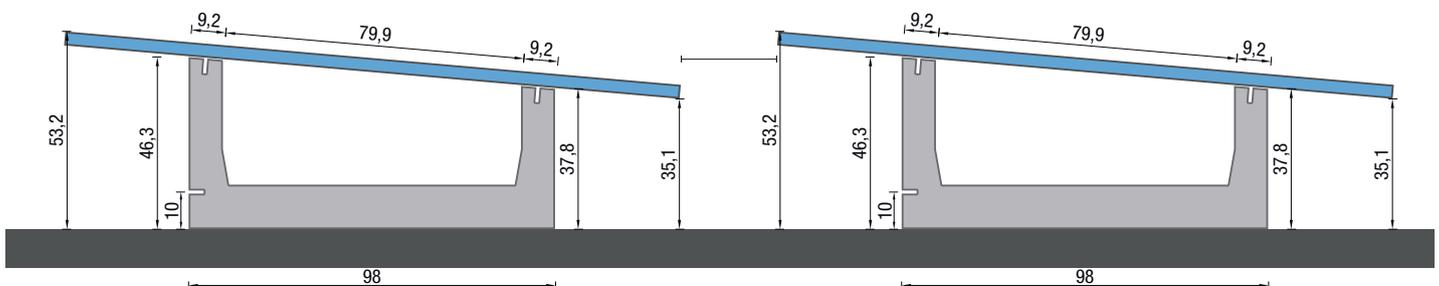
Top view



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

Side view

Distance between panels starting from 40 cm to 80 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



**5° SINGLE ROW SYSTEM**



**5° SAIL-SHAPED SYSTEM**



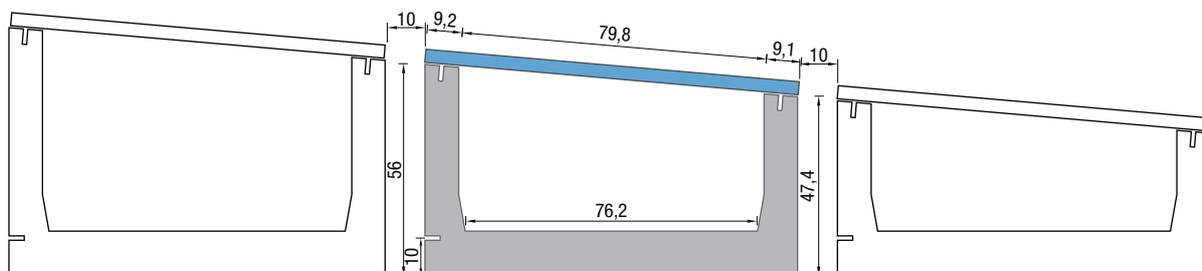
## B. SUN BALLAST TECHNICAL DATA SHEET

### Ballast 5°.5 - Art. 23005.5

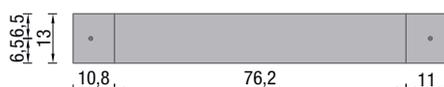
<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	5°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	59 kg	<b>Pallet dimensions</b>	98 cm x 110 cm, h = 74 cm
<b>Distance of modules</b>	Starting from 40 cm to 80 cm	<b>Pallet weight</b>	590 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view



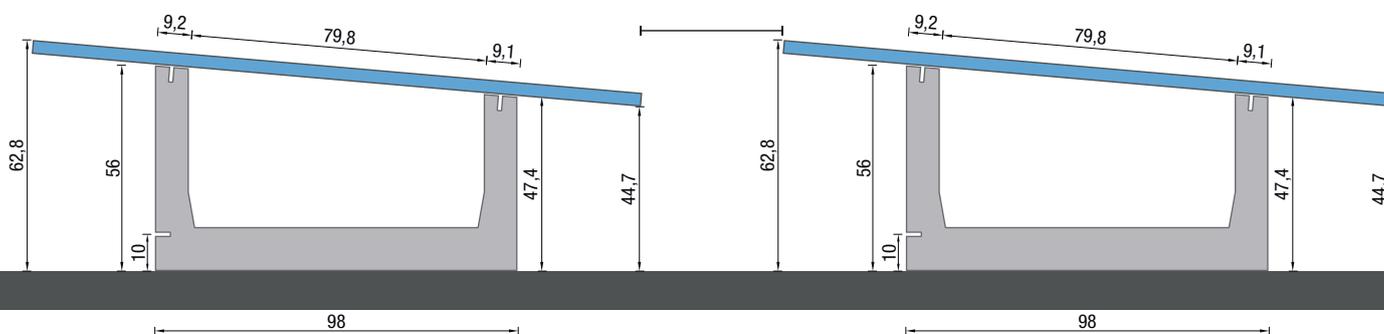
Top view



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

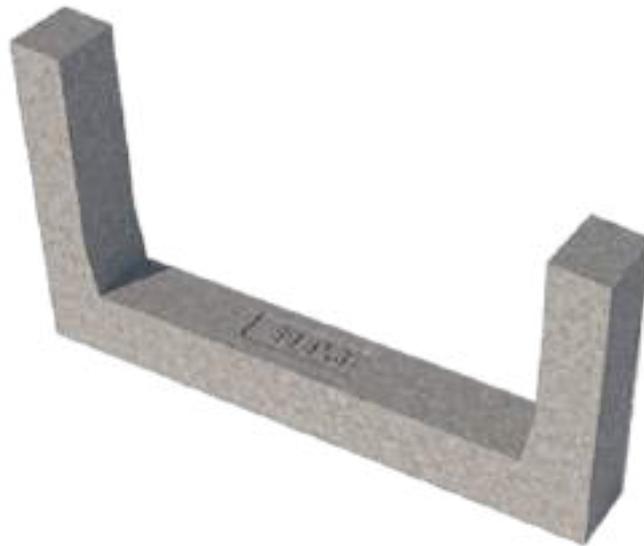
Side view

Distance between panels starting from 40 cm to 80 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



**5° SINGLE ROW SYSTEM**



**5° SAIL-SHAPED SYSTEM**



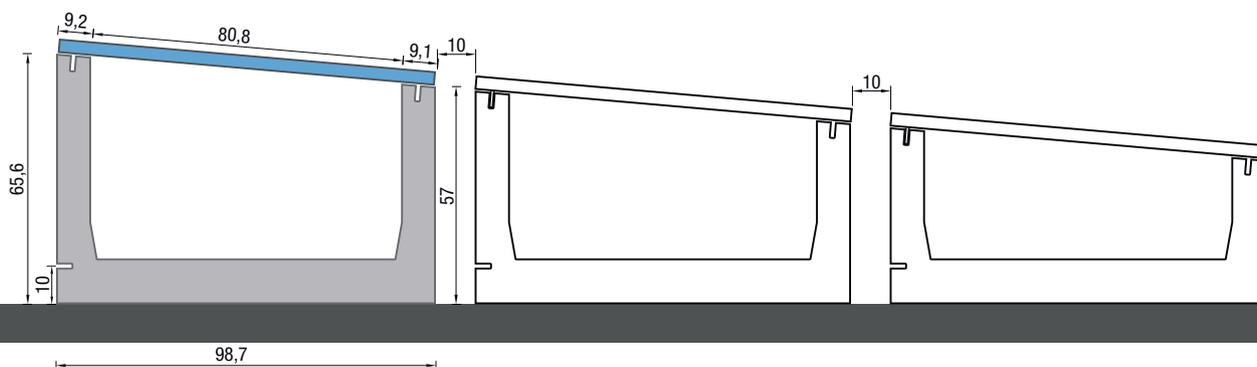
## B. SUN BALLAST TECHNICAL DATA SHEET

### Ballast 5°.6 - Art. 23005.6

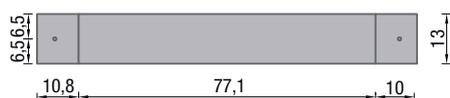
<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	5°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	64 kg	<b>Pallet dimensions</b>	98 cm x 130 cm, h = 74 cm
<b>Distance of modules</b>	Starting from 40 cm to 80 cm	<b>Pallet weight</b>	640 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view



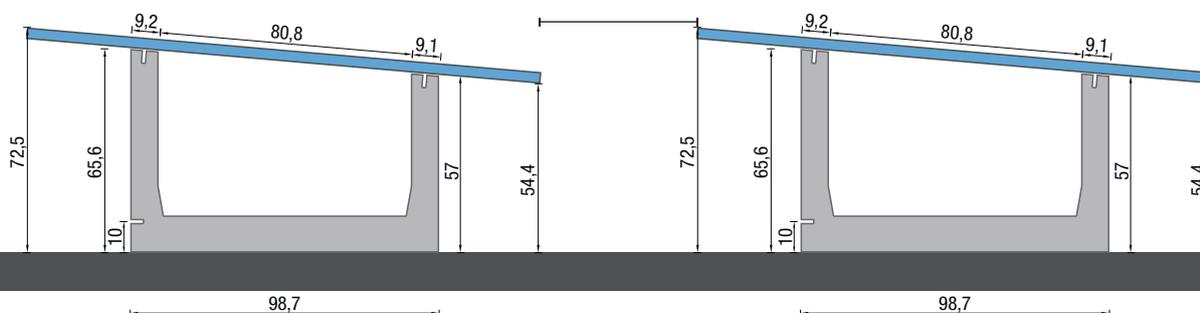
Top view



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

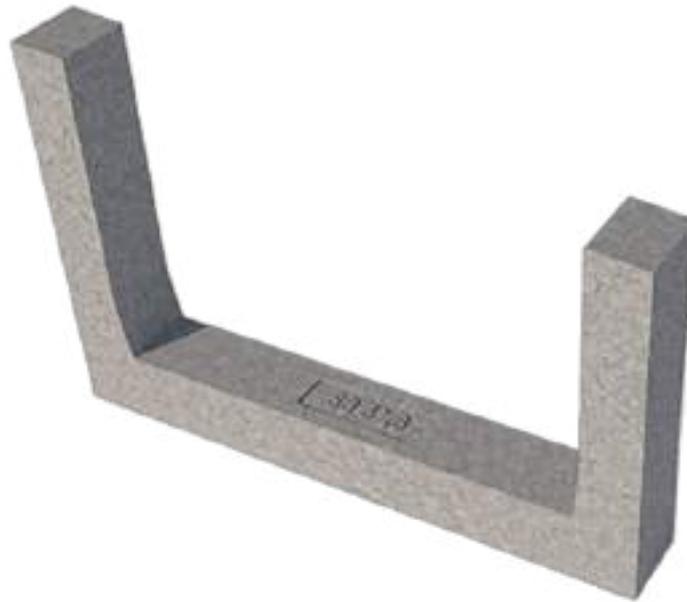
Side view

Distance between panels starting from 40 cm to 80 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



**5° SINGLE ROW SYSTEM**



**5° SAIL-SHAPED SYSTEM**



## B. SUN BALLAST TECHNICAL DATA SHEET

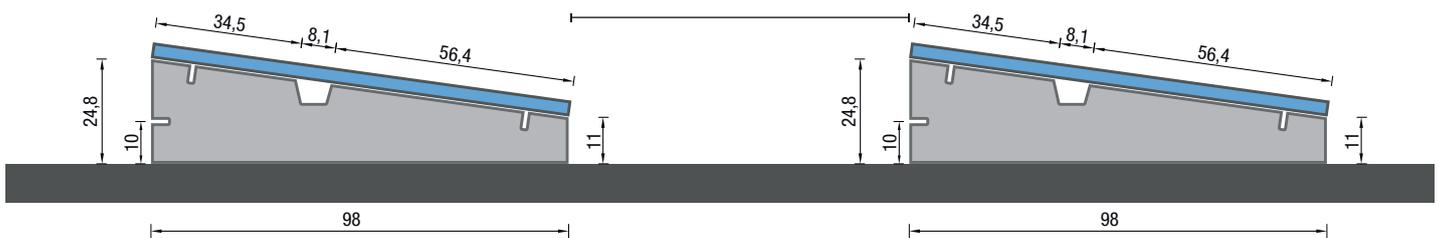
### Ballast 8°.K - Art. 23008.K

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	8°	<b>Quantity for pallet</b>	18 pieces
<b>Ballast weight</b>	45 kg	<b>Pallet dimensions</b>	90 cm x 98 cm, h = 45 cm
<b>Distance of modules</b>	Starting from 50 cm to 80 cm	<b>Pallet weight</b>	810 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

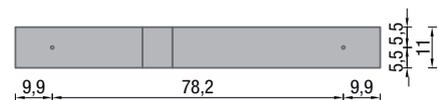
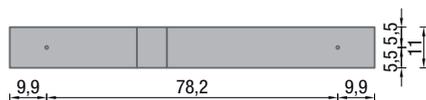
#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

##### Side view

Distance between panels starting from 50 cm to 80 cm



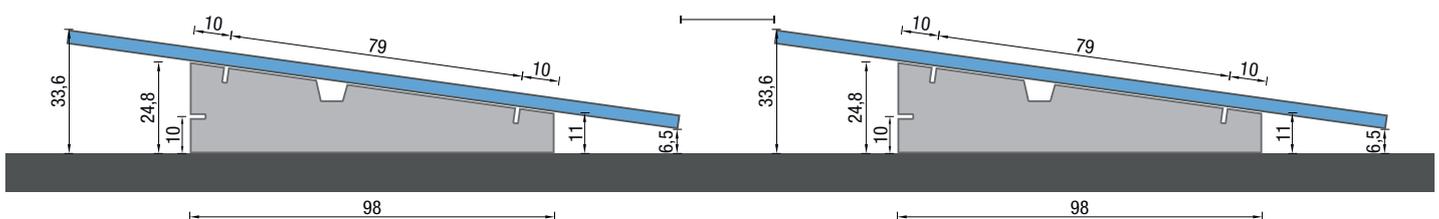
##### Top view



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

##### Side view

Distance between panels starting from 50 cm to 80 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



## B. SUN BALLAST TECHNICAL DATA SHEET

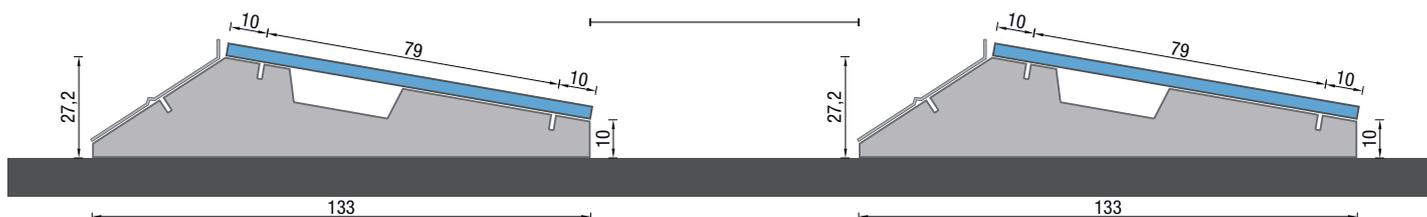
### Ballast 10° - Art. 23010 SHED

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	10°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	53 kg	<b>Pallet dimensions</b>	70 cm x 98 cm, h = 58 cm
<b>Distance of modules</b>	Starting from 60 cm to 100 cm	<b>Pallet weight</b>	530 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

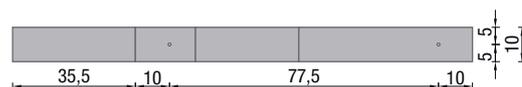
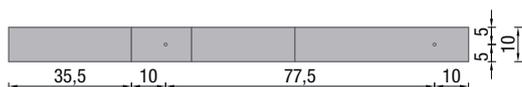
#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view

Distance between panels starting from 60 cm to 100 cm



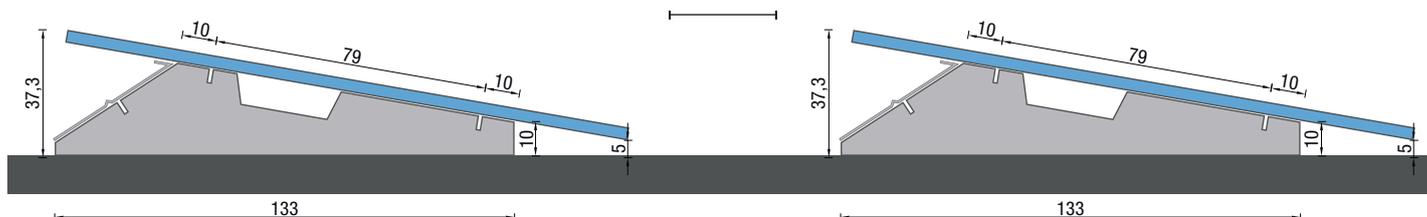
Top view



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

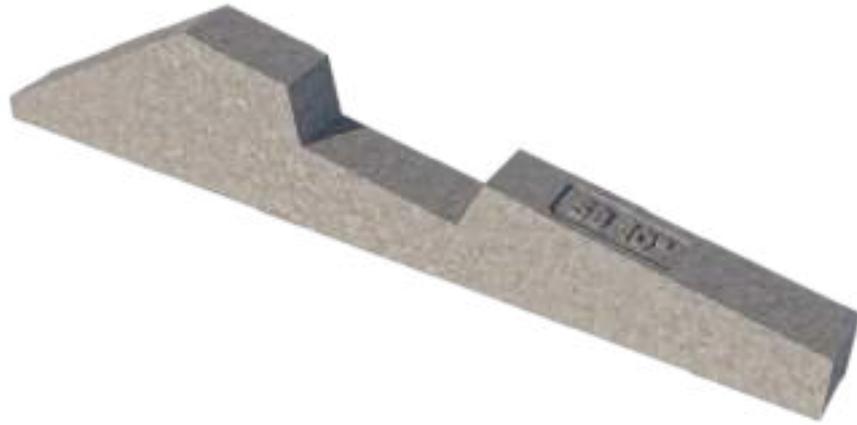
Side view

Distance between panels starting from 60 cm to 100 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



## B. SUN BALLAST TECHNICAL DATA SHEET

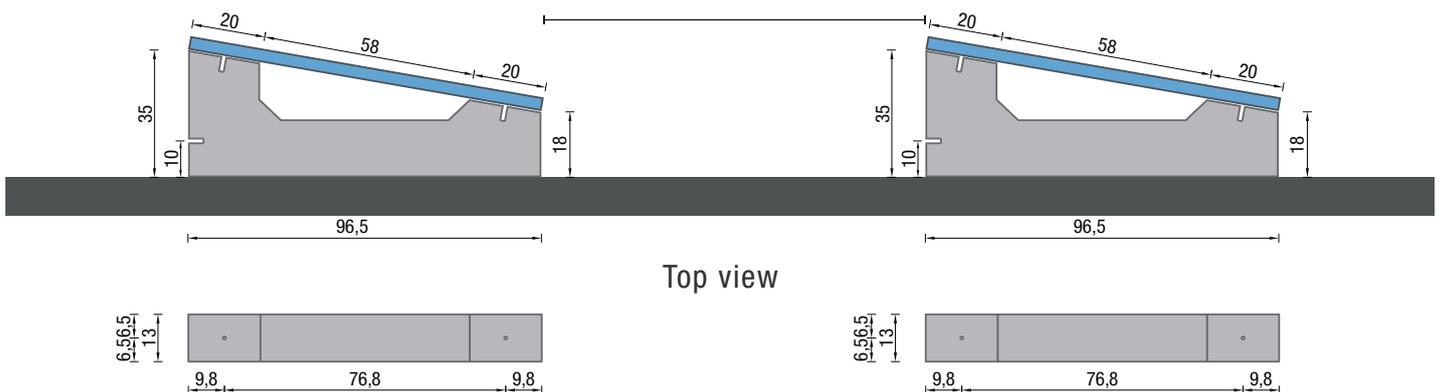
### Ballast 10°.V - Art. 23010.V

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	10°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	60 kg	<b>Pallet dimensions</b>	70 cm x 98 cm, h = 58 cm
<b>Distance of modules</b>	Starting from 60 cm to 100 cm	<b>Pallet weight</b>	600 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view

Distance between panels starting from 60 cm to 100 cm

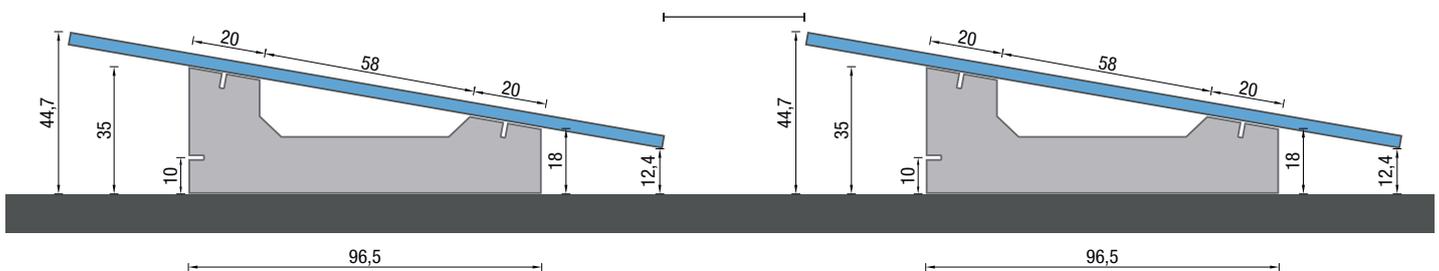


Top view

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

Side view

Distance between panels starting from 60 cm to 100 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



## B. SUN BALLAST TECHNICAL DATA SHEET

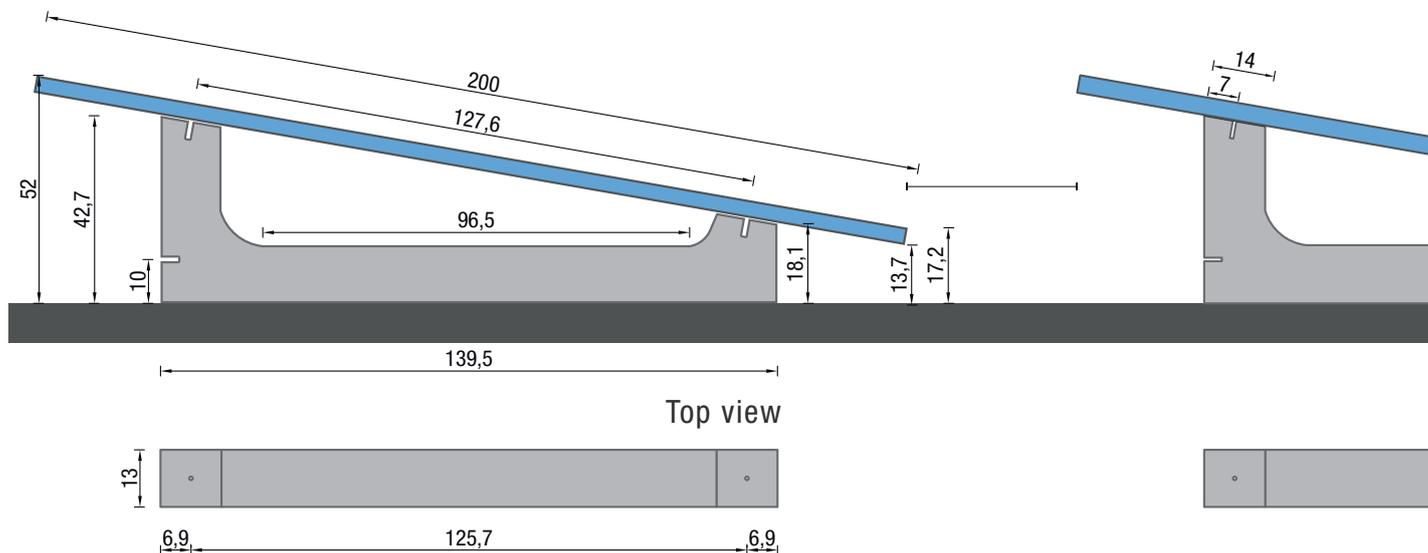
### Ballast 10° - Art. 23010.L

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	10°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	70 kg	<b>Pallet dimensions</b>	140 cm x 65 cm, h = 70 cm
<b>Distance of modules</b>	Minimum recommended 90 cm	<b>Pallet weight</b>	700 kg
<b>Module positioning</b>	Vertical	<b>PV panel size</b>	200 cm x 100 cm

### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

#### Side view

Distance between panels starting from 90 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



## B. SUN BALLAST TECHNICAL DATA SHEET

### Ballast 11°K - Art. 23011.K

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	11°	<b>Quantity for pallet</b>	18 pieces
<b>Ballast weight</b>	42 kg	<b>Pallet dimensions</b>	86 cm x 86 cm, h = 55 cm
<b>Distance of modules</b>	Starting from 60 cm to 80 cm	<b>Pallet weight</b>	756 kg
<b>Module positioning</b>	Horizontal	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view

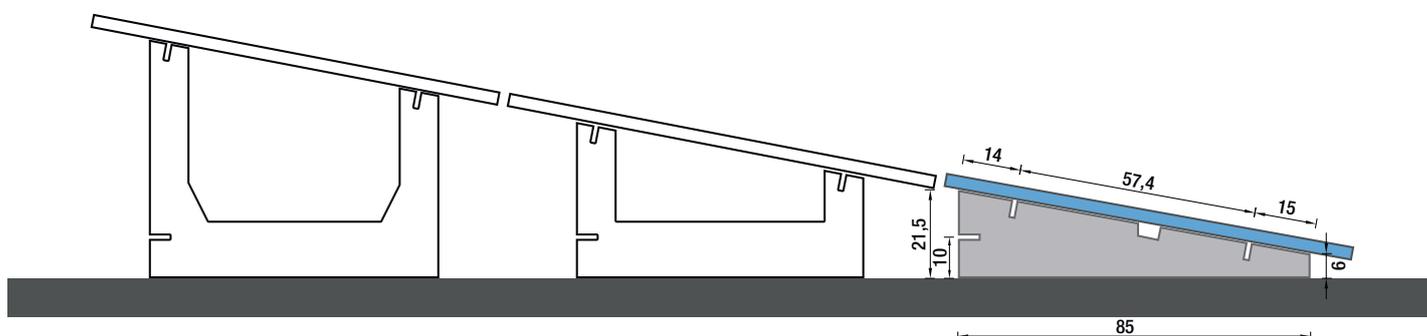
Distance between panels starting from 60 cm to 80 cm



Top view

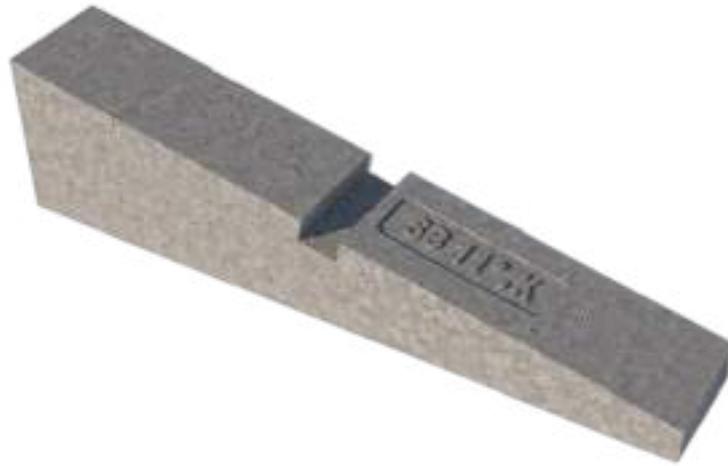


Side view



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



**11° SINGLE ROW SYSTEM**



**11° SAIL-SHAPED SYSTEM**



## B. SUN BALLAST TECHNICAL DATA SHEET

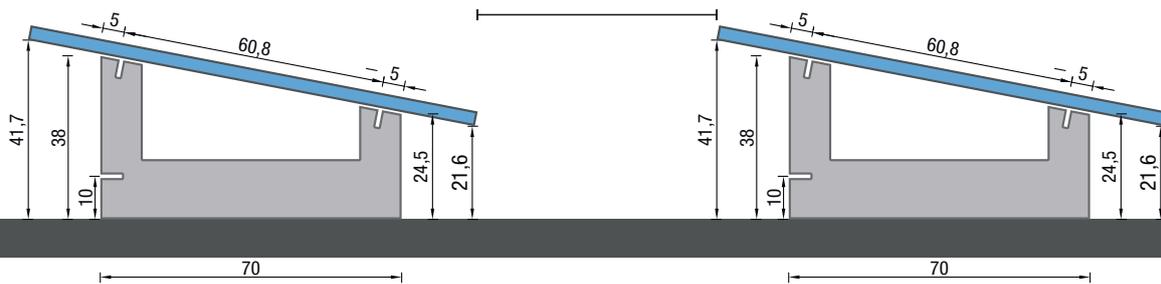
### Ballast 11°.2 - Art. 23011.2

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	11°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	44 kg	<b>Pallet dimensions</b>	75 cm x 65 cm, h = 87 cm
<b>Distance of modules</b>	Starting from 60 cm a 80 cm	<b>Pallet weight</b>	440 kg
<b>Module positioning</b>	Horizontal	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

##### Side view

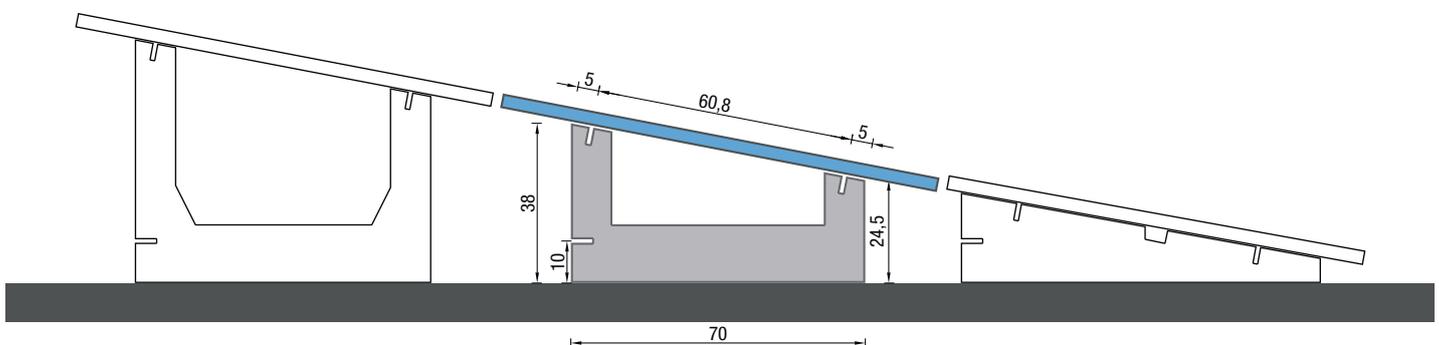
Distance between panels starting from 60 cm to 80 cm



##### Top view

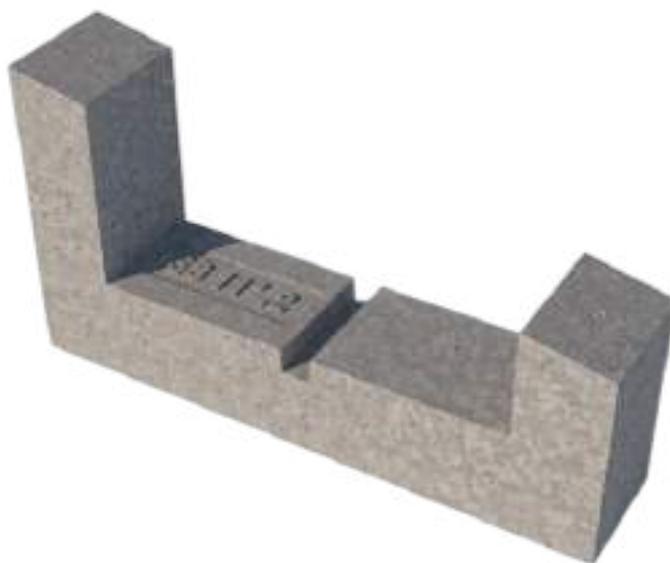


##### Side view



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



**11° SINGLE ROW SYSTEM**



**11° SAIL-SHAPED SYSTEM**



## B. SUN BALLAST TECHNICAL DATA SHEET

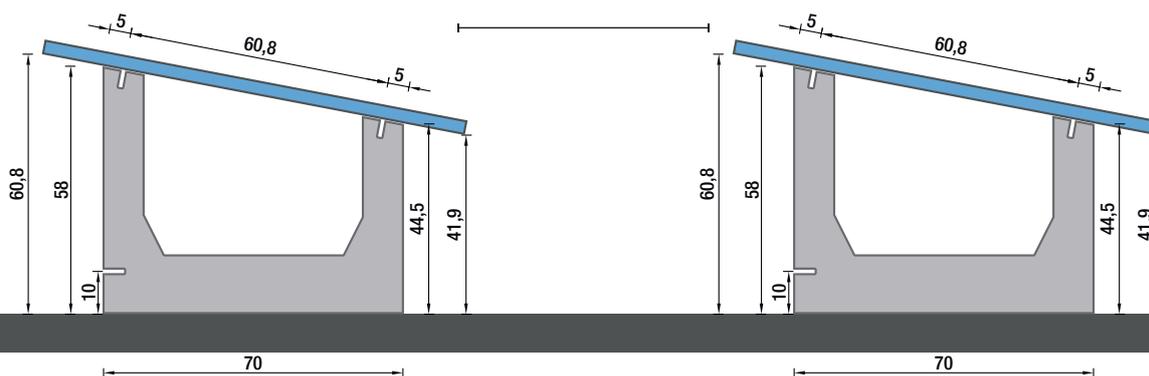
### Ballast 11°.3 - Art. 23011.3

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	11°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	61 kg	<b>Pallet dimensions</b>	70 cm x 98 cm, h = 87 cm
<b>Distance of modules</b>	Starting from 60 cm to 80 cm	<b>Pallet weight</b>	610 kg
<b>Module positioning</b>	Horizontal	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view

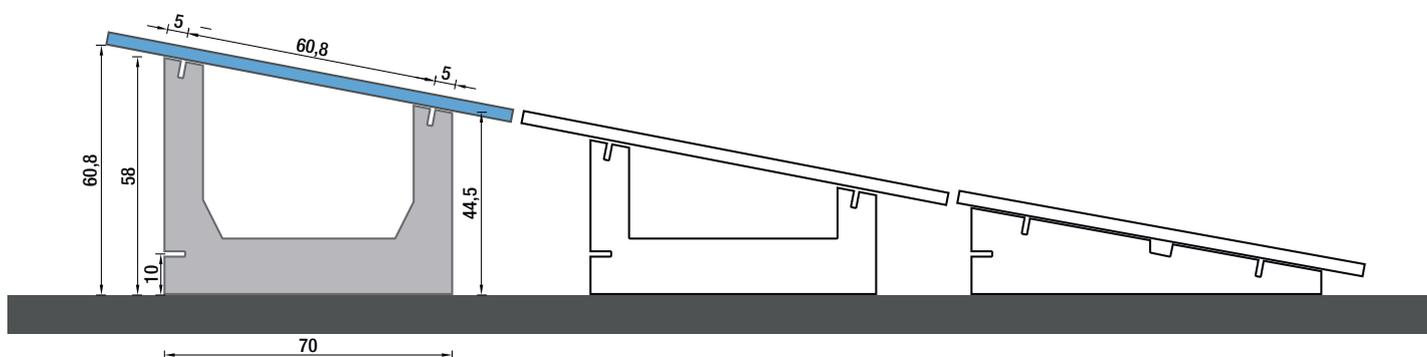
Distance between panels starting from 60 cm to 80 cm



Top view

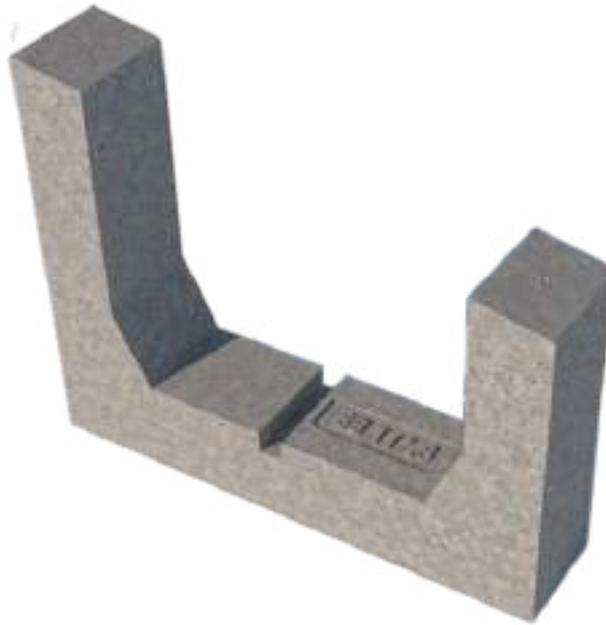


Side view



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



**11° SINGLE ROW SYSTEM**



**11° SAIL-SHAPED SYSTEM**



## B. SUN BALLAST TECHNICAL DATA SHEET

### Ballast 15° - Art. 23015

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	15°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	47 kg	<b>Pallet dimensions</b>	58 cm x 96 cm, h = 62 cm
<b>Distance of modules</b>	Starting from 80 cm to 100 cm	<b>Pallet weight</b>	470 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

##### Side view

Distance between panels starting from 80 cm to 100 cm



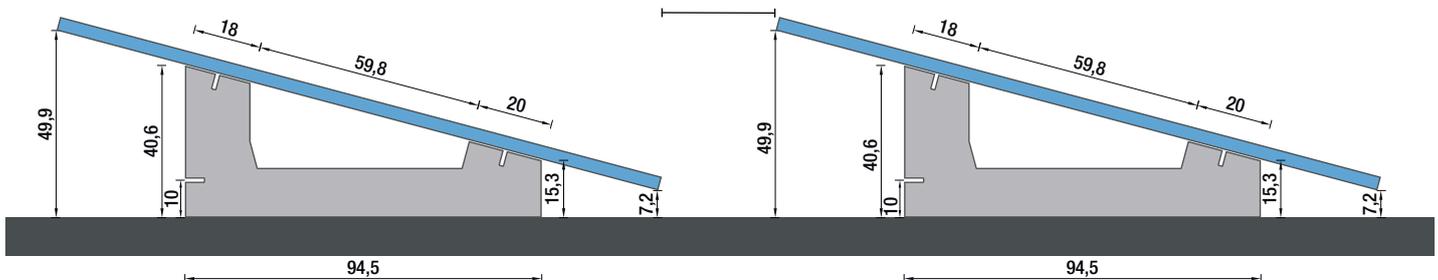
##### Top view



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

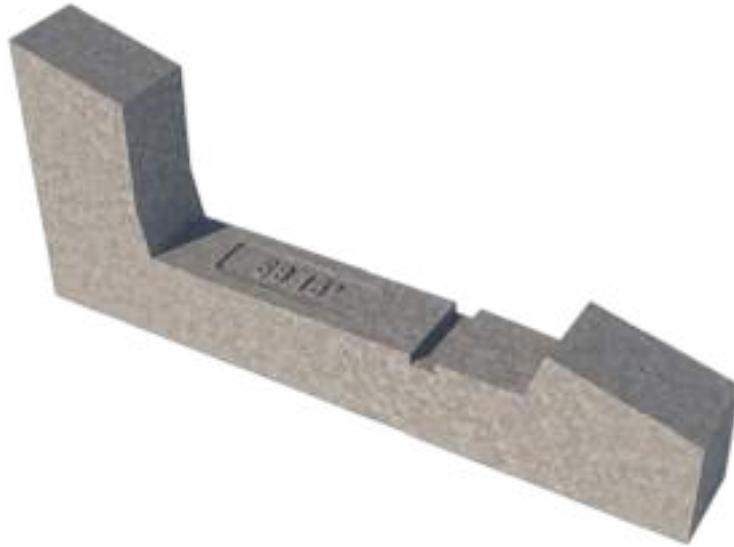
##### Side view

Distance between panels starting from 80 cm to 100 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



## B. SUN BALLAST TECHNICAL DATA SHEET

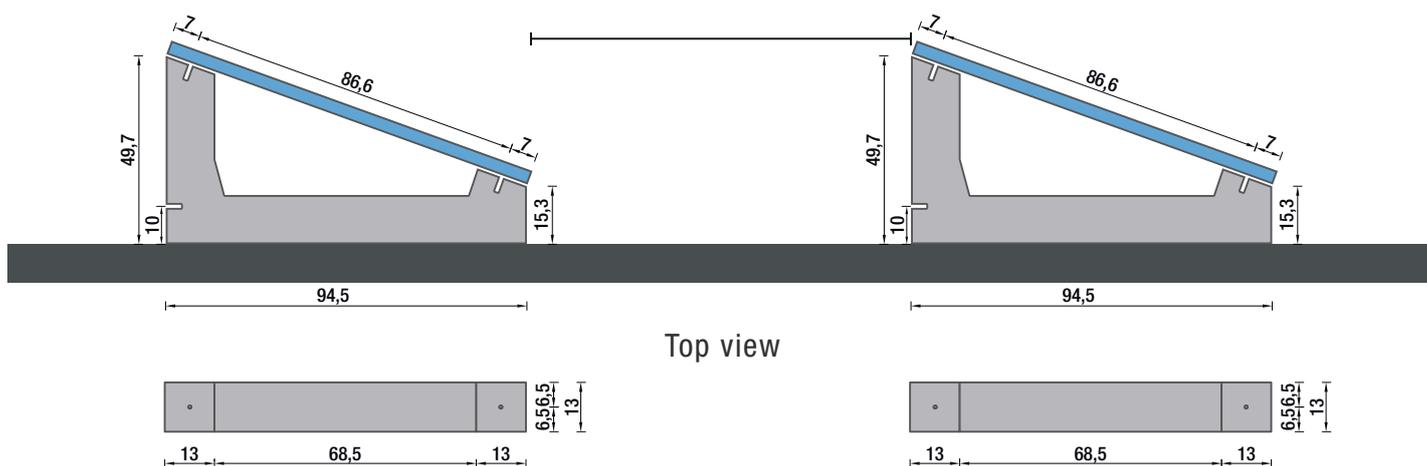
### Ballast 20° - Art. 23020

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	20°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	55 kg	<b>Pallet dimensions</b>	98 cm x 70 cm, h = 74 cm
<b>Distance of modules</b>	Starting from 80 cm to 100 cm	<b>Pallet weight</b>	550 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view

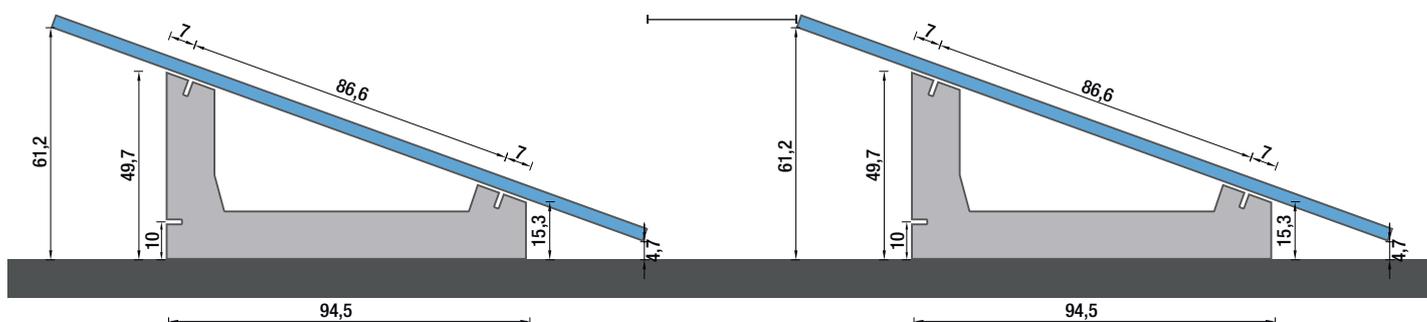
Distance between panels starting from 80 cm to 100 cm



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

Side view

Distance between panels starting from 80 cm to 100 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



## B. SUN BALLAST TECHNICAL DATA SHEET

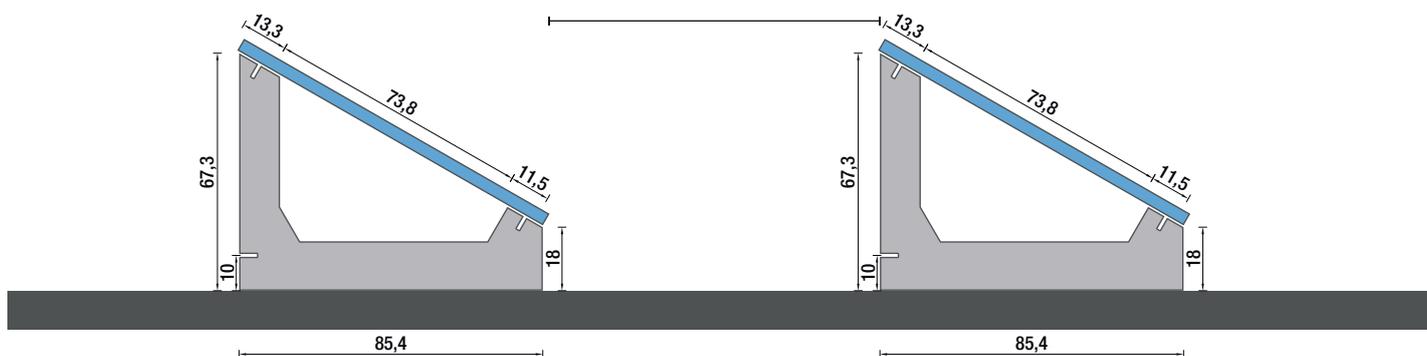
### Ballast 30°.1 - Art. 23030.1

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	30°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	58 kg	<b>Pallet dimensions</b>	86 cm x 86 cm, h = 92 cm
<b>Distance of modules</b>	Starting from 100 cm to 120 cm	<b>Pallet weight</b>	580 kg
<b>Module positioning</b>	Horizontal, Vertical	<b>PV panel size</b>	165 cm x 99,2 cm

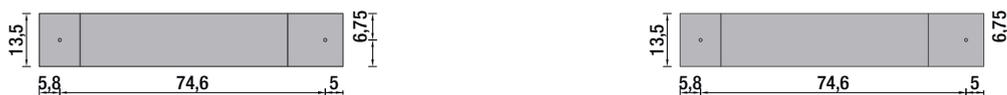
#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view

Distance between panels starting from 100 cm to 120 cm



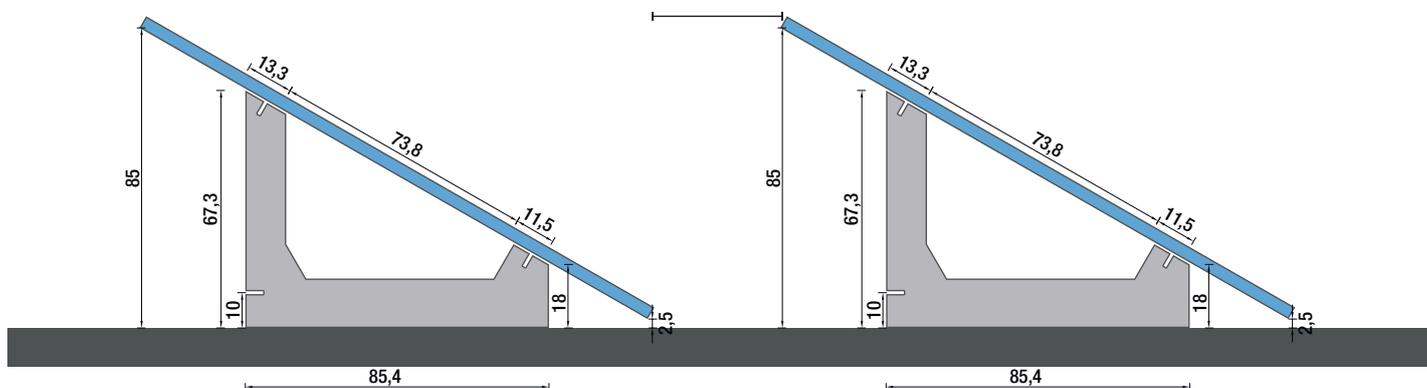
Top view



#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM VERTICAL PANEL LAYING

Side view

Distance between panels starting from 100 cm to 120 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer



## B. SUN BALLAST TECHNICAL DATA SHEET

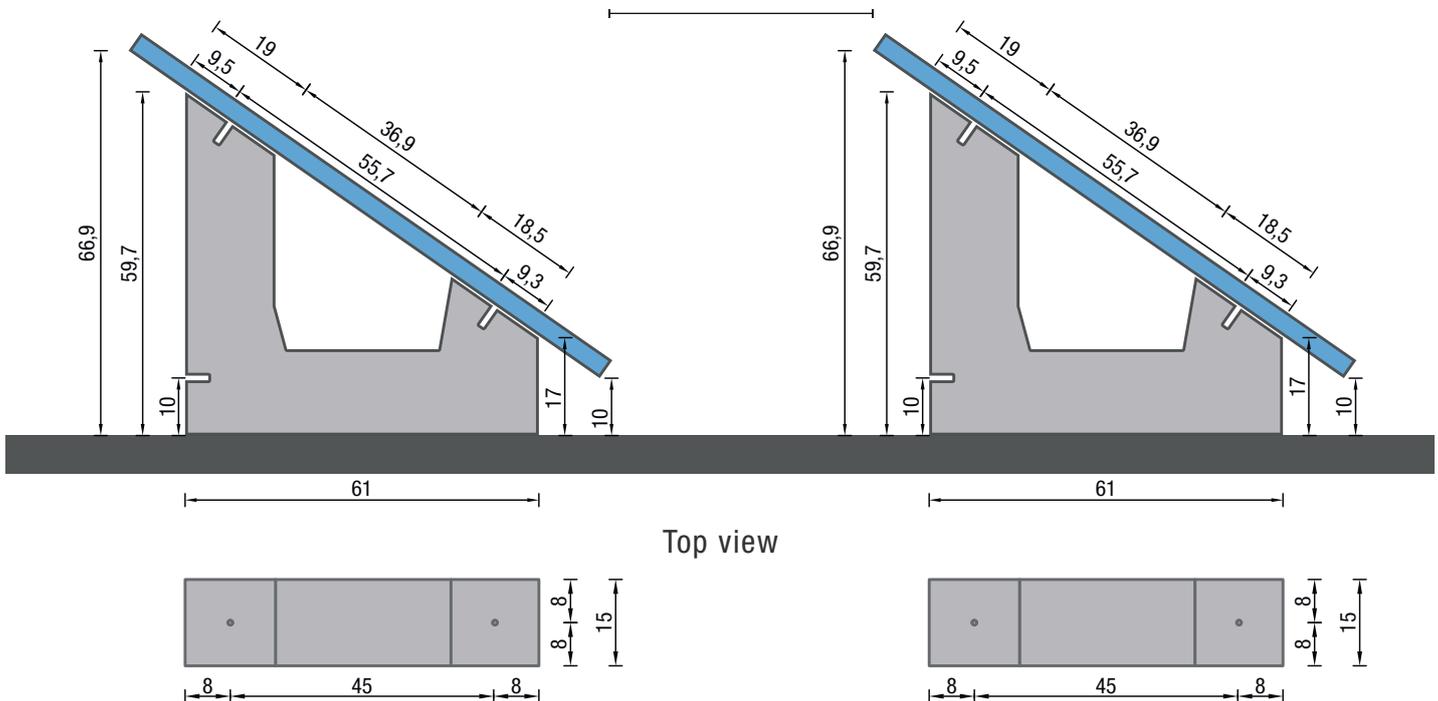
### Ballast 35° - Art. 23035.1

<b>Material</b>	The main material of SUN BALLAST is concrete, which allows a low wear over time and the ability to withstand even the most intense perturbations and different climatic conditions.		
<b>Application</b>	Any type of flat roof with a maximum slope of 5 °; on the ground, on beaten ground with inert material or pavements.		
<b>Inclination angle</b>	35°	<b>Quantity for pallet</b>	10 pieces
<b>Ballast weight</b>	60 kg	<b>Pallet dimensions</b>	75 cm x 65 cm, h = 84 cm
<b>Distance of modules</b>	Starting from 120 cm to 150 cm	<b>Pallet weight</b>	600 kg
<b>Module positioning</b>	Horizontal	<b>PV panel size</b>	165 cm x 99,2 cm

#### SYSTEM DETAILS UNIT OF MEASUREMENT - CM HORIZONTAL PANEL LAYING

Side view

Distance between panels starting from 120 cm to 150 cm



#### Info

- The torque applied shall refer to the mechanical standard conforming to the bolt in use; with M8 bolts in stainless steel use a torque of 12 - 14 Nm
- Avoid screwdrivers impulse
- It's recommended to consult the information indicated in the assembly instructions of the panel manufacturer

## B. SUN BALLAST TECHNICAL DATA SHEET



## B. SUN BALLAST TECHNICAL DATA SHEET

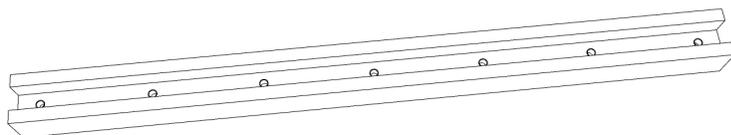
### Sistema Cablowind

CABLOWIND è un accessorio Sun Ballast composto da due elementi: una canala in cemento e un collare in zinco che utilizzati insieme permettono il collegamento tra le zavorre garantendo maggiore stabilità e carico per la tenuta al vento del sistema e il corretto alloggiamento dei cavi elettrici.

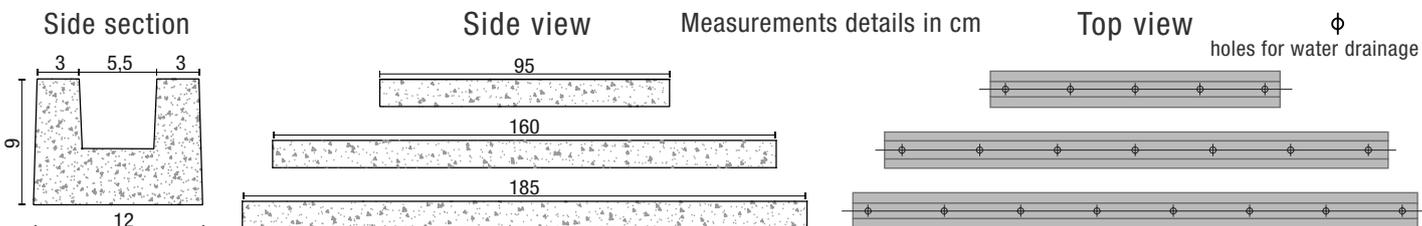
CABLOWIND è compatibile per tutti i sistemi Sun Ballast standard con inclinazione da 5° a 35° con pannelli sia in posa verticale che orizzontale.

### CABLOWIND CHANNEL

<b>Material</b>	Concrete
<b>Lengths available</b>	95cm - vertical panel laying L=95-120cm
	160cm - horizontal panel laying L=160-185cm
	185cm - horizontal panel laying L=186-211cm

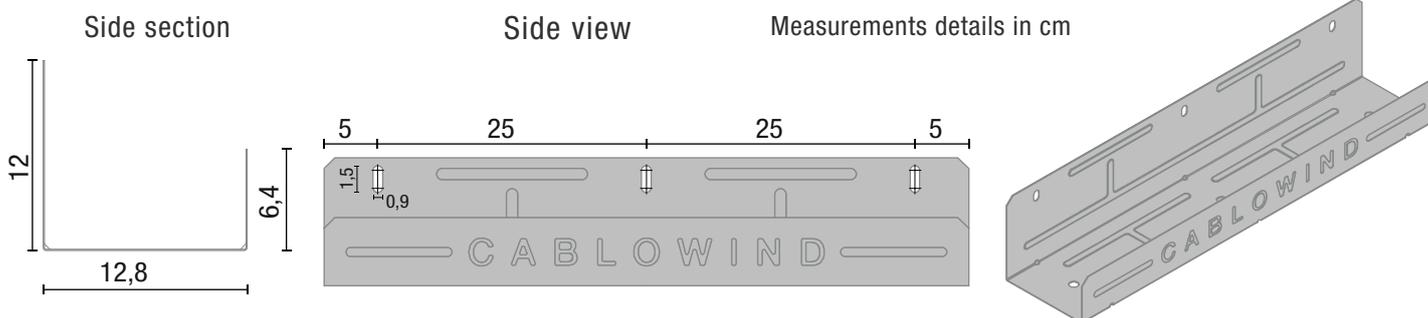


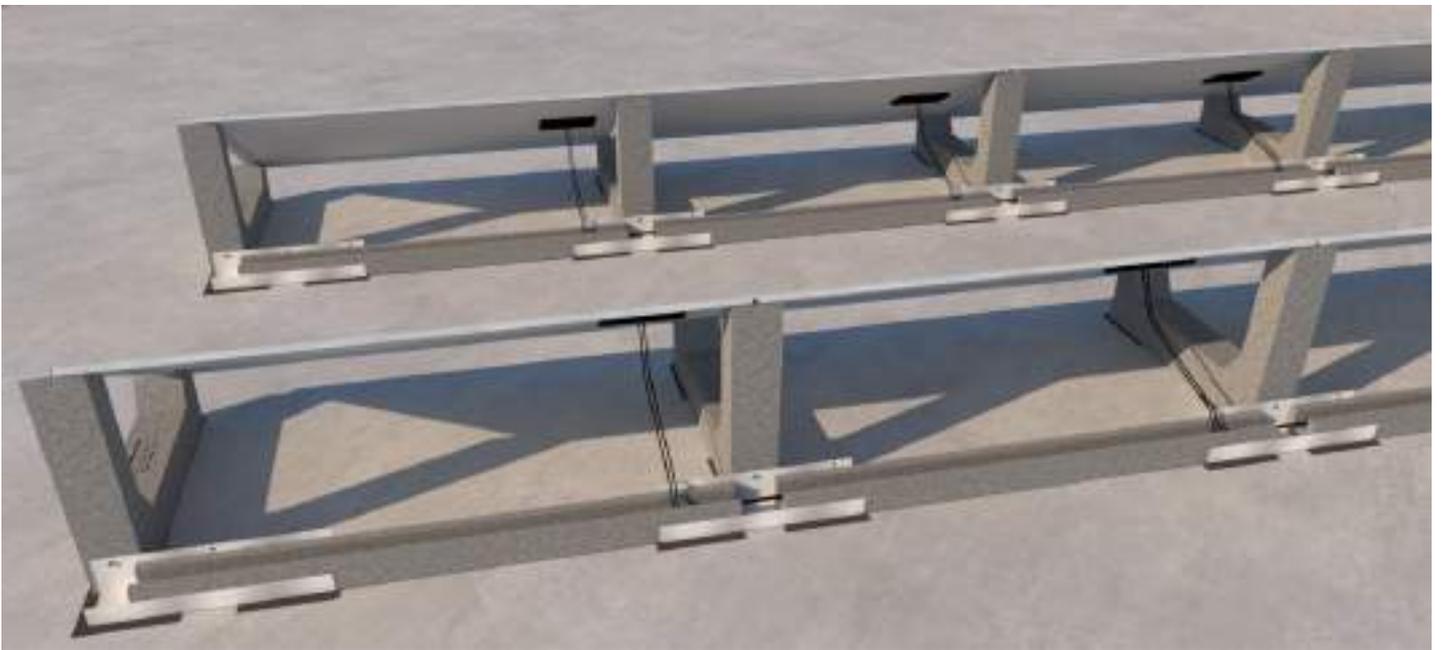
Article	Description	Weight	Pallet size	Pallet quantity	Pallet weight
cw.cablowind.95	Cablowind channel 12x9x95cm	17 kg	98x70cm	30 pieces	510 kg
cw.cablowind.160	Cablowind channel 12x9x95cm	29 kg	120x70cm	18 pieces	522 kg
cw.cablowind.185	Cablowind channel 12x9x95cm	34 kg	120x70cm	18 pieces	612 kg



### Cablowind collar

<b>Article</b>	CW.STAFFA
<b>Material</b>	Zinc magnelis
<b>Thickness</b>	8/10
<b>Peso</b>	1Kg





## C. ACCESSORIES

### C 01- Sheaths

Article description	Detail	Sheath type	Article
Rubber protection sheath 0.5 cm thick, cut 25 x 15 cm (2 pieces)		Rubber	Art. KGN23125

NB: For 10°.L and 0°.KP Ballasts 4 pieces must be inserted under each structure

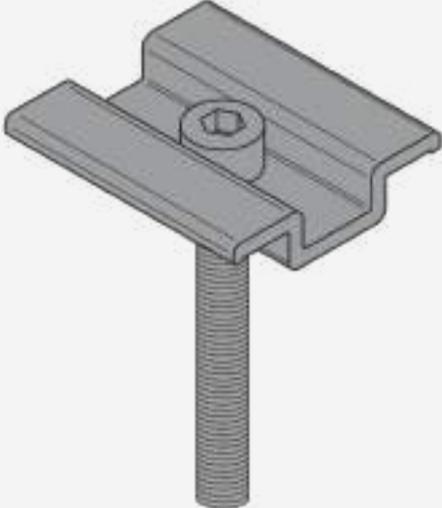
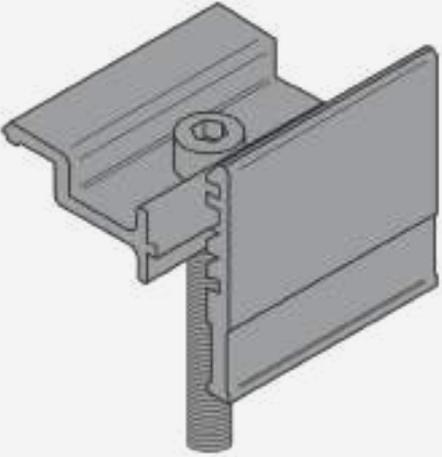
## C.ACCESSORIES

### C 02- Cablowind

	Cablowind 95 cm	Cablowind 160 cm	Cablowind 185 cm	Bracket
Detail				
Product	Canalina cablowind 12X9X95	Canalina cablowind 12X9X160	Canalina cablowind 12X9X185	Cablowind universal bracket
Code	cw.cablowind.95	cw.cablowind.160	cw.cablowind.185	cw.collare
Weight	17 Kg	29 Kg	34 Kg	
Pallet Quantity	30 Pieces	18 Pieces	18 Pieces	
Pallet weight	510 Kg	522 Kg	612 Kg	

## C. ACCESSORIES

### C 03- Fixing kit

Article description	Detail	Article
<p>Kit aluminium central bracket, stainless screw 8X50 (thickness panel &lt;46mm) (10pz)</p>		K23900/U.50
<p>Kit aluminium central bracket, stainless screw 8X55 (thickness panel &lt;48mm) (10pz)</p>		K23900/U.55
<p>Universal terminal clip kit, (module thickness up to 46mm) (10pcs)</p>		K23920/U.50
<p>Universal terminal clip kit, (module thickness up to 48mm) (10pcs)</p>		K23920/U.50

## C. ACCESSORIES

### C 04- Windbreak

Article description	Article	
Carter per zavorra 10°	Posa verticale Art. K23110.V	Posa orizzontale Art.K23110.0

### WINDBREAK WITH FASTENING FOR CONNECT SYSTEM (INCLUDING BOLTS)

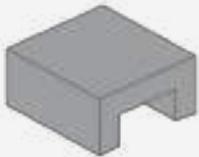
Article description	Article	
Windbreak for connect 10°	Art.K23110.CRT	
Windbreak for connect 10° vertical	Central ballast	Art.K23110.CRV
	Terminal ballast	Art.K23110.CRTV
Windbreak for connect 15°	Art.K23115.CRT	
Windbreak for connect 20°	Art.K23120.CRT	
Windbreak for connect 30°	Art.K23130.CRT	
Expansion bushing for the carter installation on the central ballast	Art.TASOTT8	

#### Additional Notes:

- Windshields to be produced on order.
- Windshield for Connect ballasts are available for standard module sizes, for different dimensions they must be produced on order.

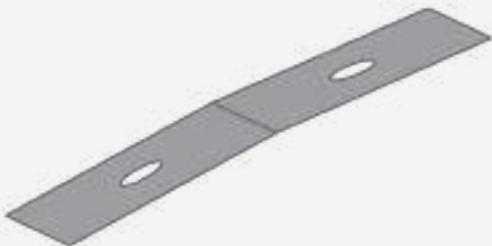
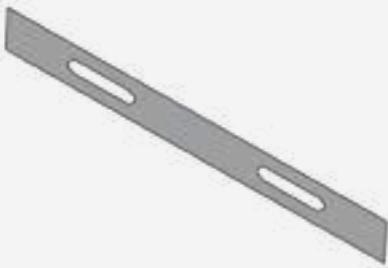
## C. ACCESSORIES

### C 05- Additional weights

	Additional weights 35 Kg	Additional weights 50 Kg	Additional weights 30Kg (for connect system)
Detail			
Article description	Additional weight (80x12x15) 35 Kg with bushing for fixing on the back side of the reinforcement bar	Additional weight (80x18x15) 50 Kg with bushing for fixing on the back side of the reinforcement bar	Additional weight (30.5x30x17) 30 kg interlocking on central ballast
Article	Art23035	Art.23050	Art.23030.CRP
Pallet Quantity	15 Pieces	10 Pieces	18 Pieces
Pallet dimensions	80 cm x 80 cm h= 44 cm	80 cm x 80 cm h= 46 cm	90 cm x 98 cm h= 50 cm
Pallet weight	525 Kg	500 Kg	540 Kg

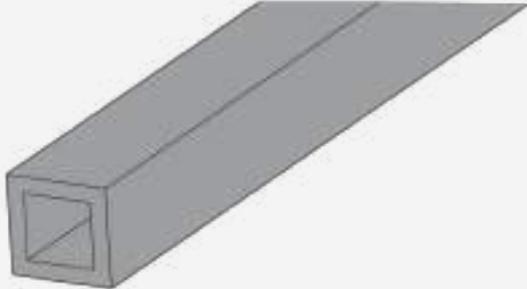
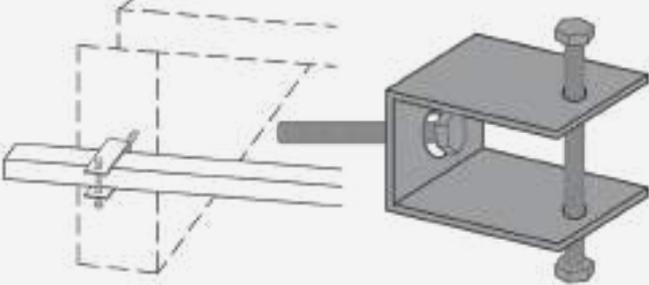
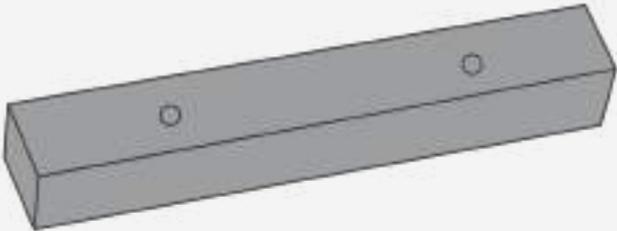
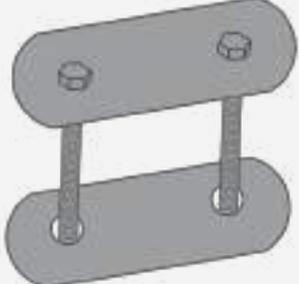
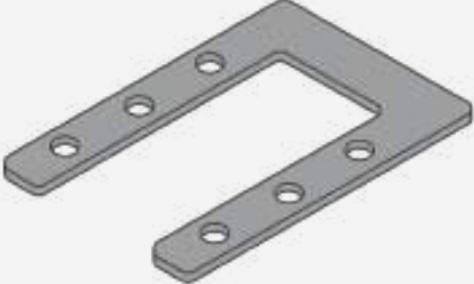
Used for strong wind loads up from 5°

### FROM 50 ADDITIONAL WEIGHTS UP FOR SUPPLY: 10% DISCOUNT

Article description	Detail	Article
East-West junction palt for ballast 3°		Art. 23815.3
East-West junction palt for ballast 5°		Art. 23815
East-West junction palt for ballast 8°		Art. 23815.8
Kit junction palt for connect system 5° CRT		Art. K23818
Kit palt double ballast 10°		Art. K23819
Kit junction palt for connect system 5°- 10°- 15°- 20°- 30° CRT		Art. K23820

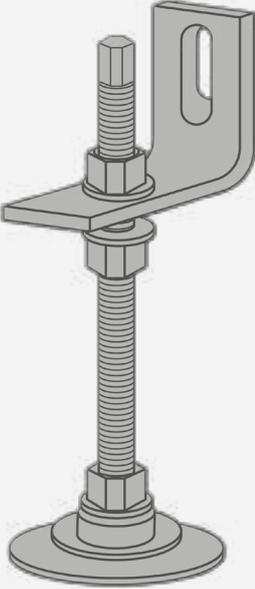
## C. ACCESSORIES

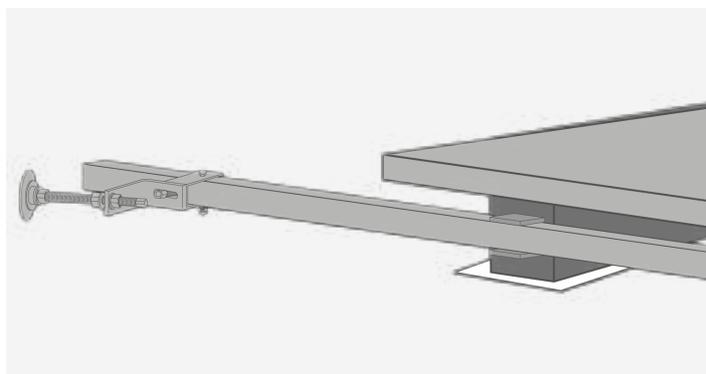
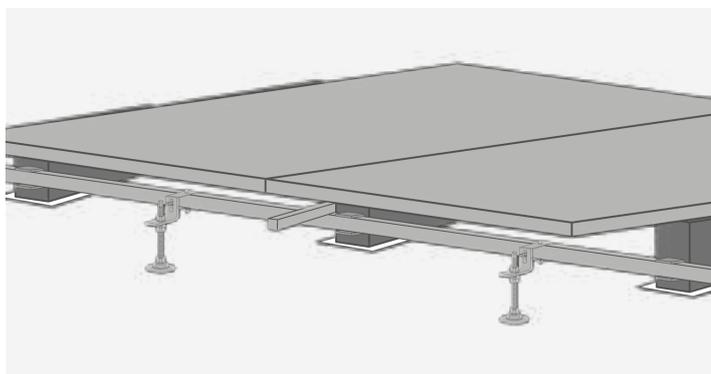
### C 06- Ballast accessories

Article description	Detail	Article
Galvanized reinforcing bar 25 X 25 mm 2/3 m		(Bar 2 m) Art. 23802
		(Bar 3 m) Art. 23803
Rear collar for bar		Art. K23811
Joint with modular length 20 X 20 mm L=100cm		Art. K23810/P
Plate for crossing bars		Art. K23813
Junction plate for sail-shaped system 11°		Art. K23011
Junction plate for sail-shaped system 5°		Art. K23005
Earthing plate (10 Pcs)		Art. PMT2300

## C. ACCESSORIES

### C 06- Ballast accessories

Article description	Detail	Article
<p>Stainless steel screw for fastening to roof/parapet M10X300 inox, accessories included</p>		<p>Art. KVITO10X300</p>
<p>Wedge in wood for levelling the ballast on roof top with gradients pacs from 20 pcs</p>		<p>Art. CUNEO</p>
<p>Resin 300ml</p>		<p>Art. CUNEO</p>
<p>Polyurethane foam 750ml</p>		<p>Art. SCH750</p>



## **D. SAFETY INSTRUCTIONS**

### D 01- Classification of the safety indications

Below are some basic definitions:

	<b>DANGER!</b> Warns of an immediate danger of death
	<b>CAREFUL!</b> It warns of a possible danger to life and/or serious injury
	<b>CAUTION!</b> Warns of possible injuries
	<b>WARNING!</b> Warns of material damage without potential injury

- Observe local standards, building regulations and safety regulations during installation. Observe the safety instructions of the other system components.
- Failure to observe the following instructions may result in property damage and/or serious injury.
- Keep the installation instructions.

## **D. SAFETY INSTRUCTIONS**

### **D 02- Safety guidelines for the Installer**



## **WARNING**

#### **RISK OF FALL**

- When working on roofs and during ascent and descent there is a risk of falls. It is essential that you observe the safety regulations and use adequate fall protections.



## **CAREFUL**

#### **HAND INJURY**

- During the assembly of the structure and forms there is a risk of injury and entrapment of the limbs.
- Work shall only be carried out by appropriately trained personnel.
- Use protective gloves and safety shoes.

#### **MUSCLE TEARING AND LUMBAR BACK INJURIES**

- Strictly follow the company's rules on manual handling of loads.

#### **CADUTA DI OGGETTI**

- During assembly on the roof there is a risk that tools or assembly material may fall off the roof, causing injury to people and property underneath.
- Before starting assembly work, delimit the danger zone below and warn people nearby not to approach.

## **D. SAFETY INSTRUCTIONS**

### **D 03- Indications for planning and sizing**

- Value the need for accessories to enhance the stability of the system according to the wind load, as shown in DM14 01 2008 Circ. 02 February 2009-N 617.
- The crucial factors for the wind load calculation are the speed of reference, that changes according to the area of the plant location (from 1 to 9), the building height, the distance from the roof edges.
- Pay particular attention to installations within 30 km from the coast and/or typically windy.
- The designer and the installer are in charge for the sizing of the plant structure.
- Make sure that the substructure is appropriate in terms of capacity.
- Ask the client the residual bearing capacity available, check that the slab performs the load division and divide the weight of modules + ballast per m<sup>2</sup>, included the area between the rows and the distance from the roof edges.
- For any doubt consult a qualified technician.



## **D. SAFETY INSTRUCTIONS**

### **D 04- System description**

Sun Ballast is a modular system, both in terms of tilt angles and weight. The 34 Sun Ballast models: 0°.K, 3°K, 5°, 5°.2, 5°.3, 5°.4, 5°.5, 5°.6, 8°.K, 10°, 11°K, 11°.2, 11°.3, 15°, 20°, 30°.1, 35°, allow the modules to be installed in various orientations: landscape, portrait, east-west.

The modulation of load is made through the possibility of inserting additional ballasts and/or installing reinforcing bars; the great advantage of inserting the weights only where most appropriate permits not to load the roof unnecessarily and to meet the wind load verification.



### **GENERAL INFORMATION**

Please read carefully the Sun Ballast product sheets for the system in question.

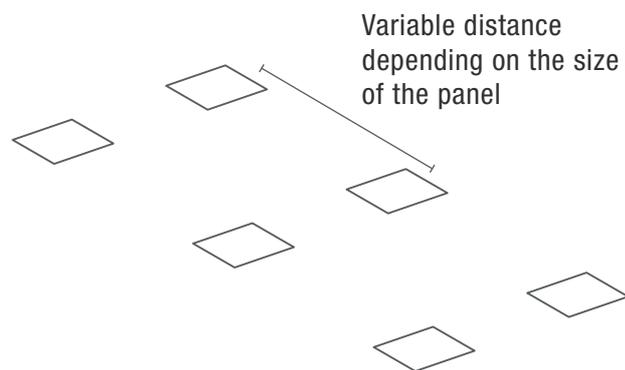
For an indicative calculation of wind load and potential use of additional weights, please provide us with: planimetry, height and complete address of the building.

Otherwise consult a qualified technician.

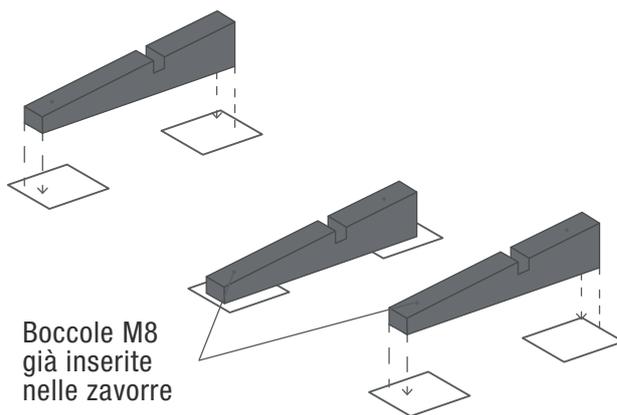
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 01- Standard assembly sequence

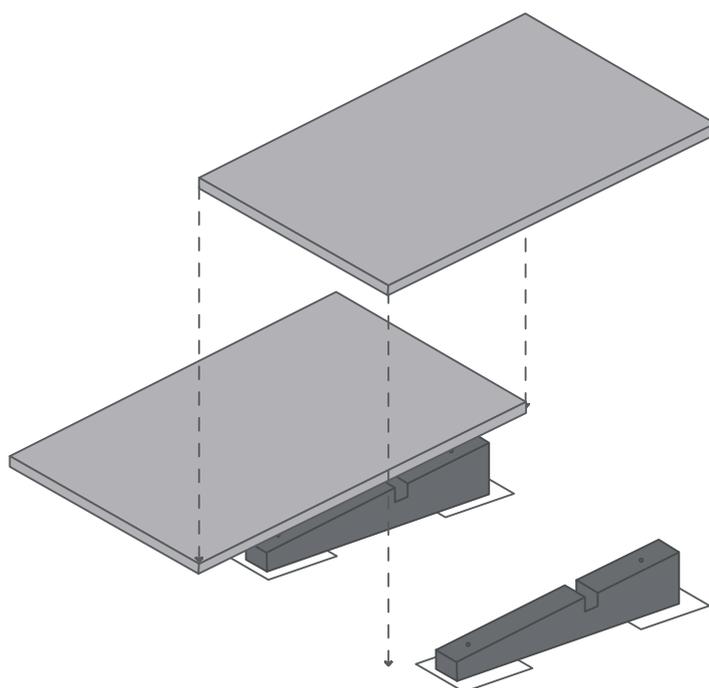
#### Phase 1: Laying of the sheaths



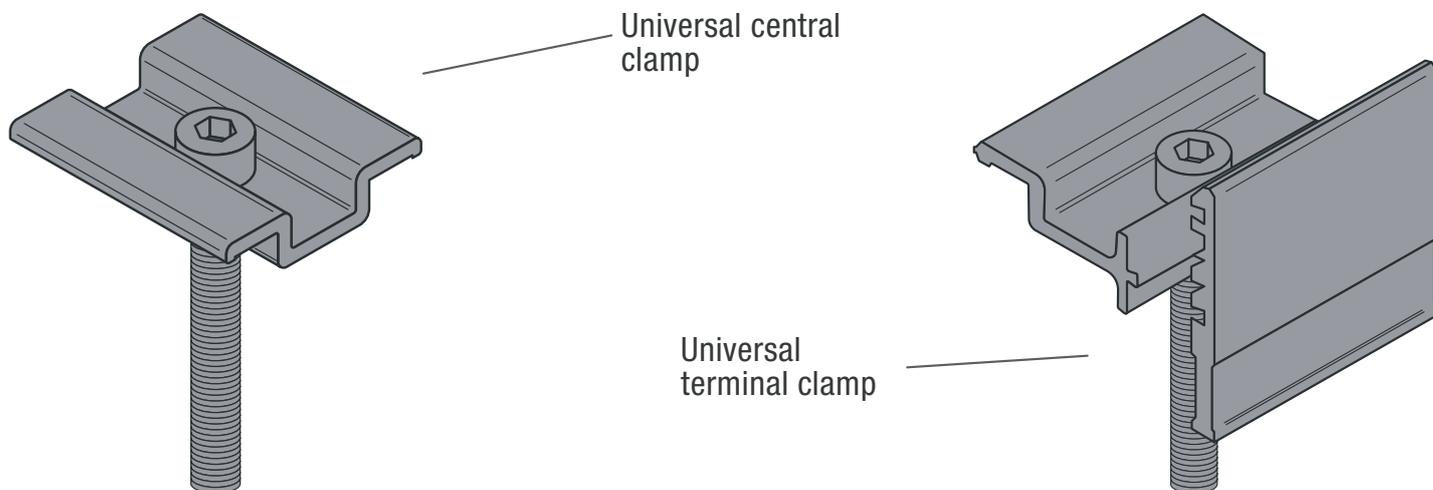
#### Phase 2: Laying of Ballasts on the sheaths



#### Phase 3: Laying of the PV panels



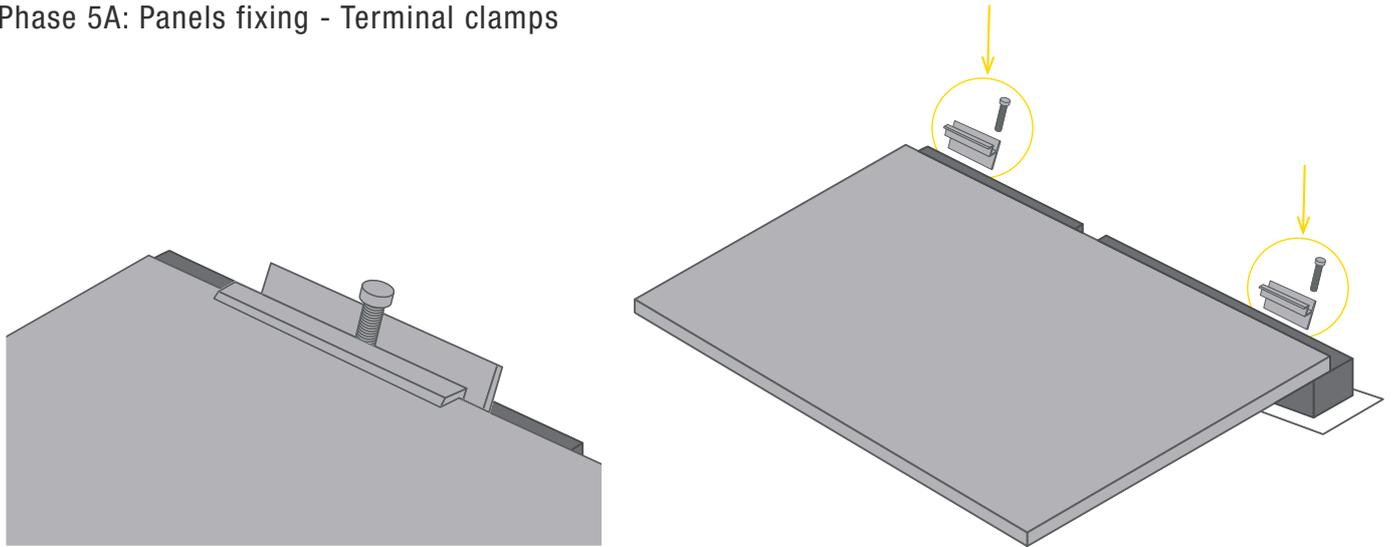
#### Phase 4: Preparation of the fixing clamps



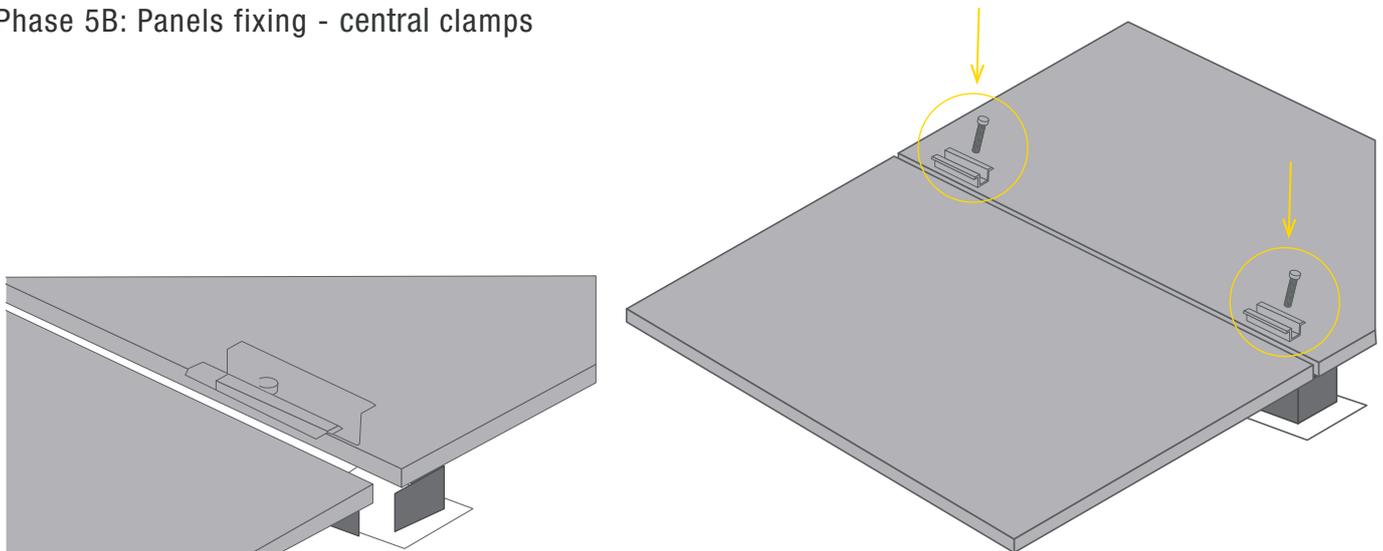
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 01- Standard assembly sequence

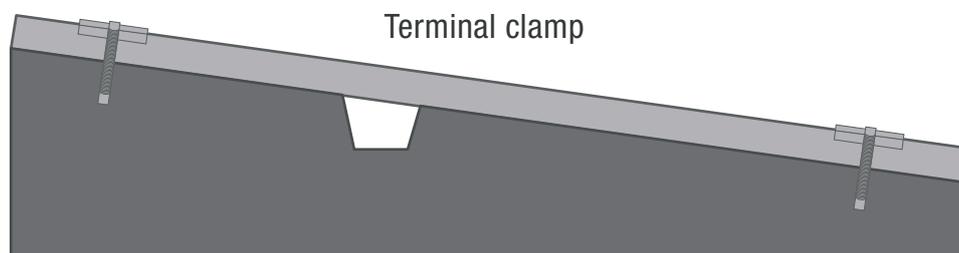
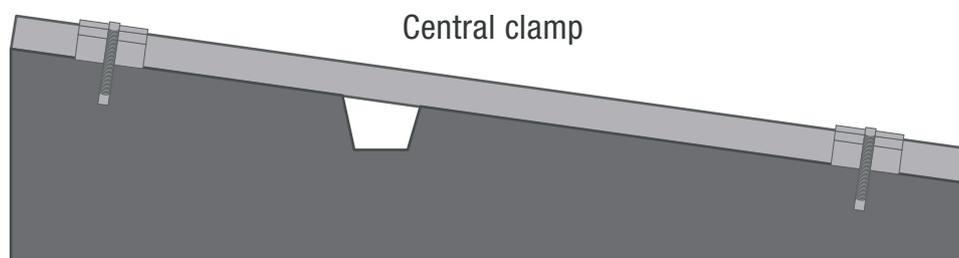
#### Phase 5A: Panels fixing - Terminal clamps



#### Phase 5B: Panels fixing - central clamps



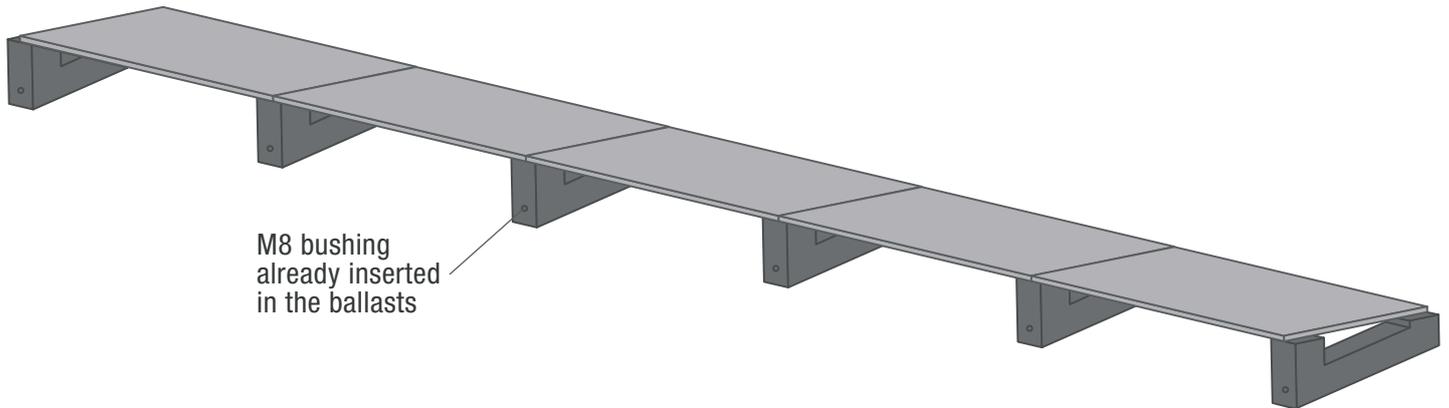
#### Sections



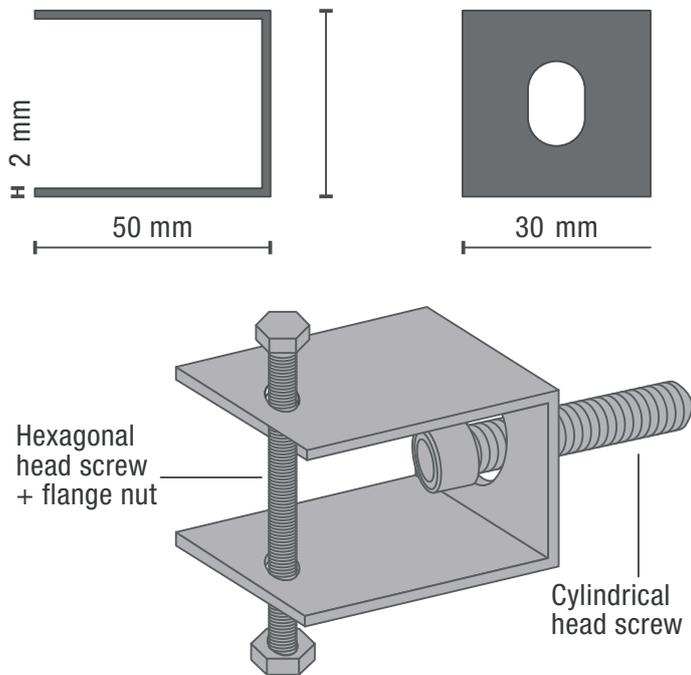
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 02- Assembly of back bar

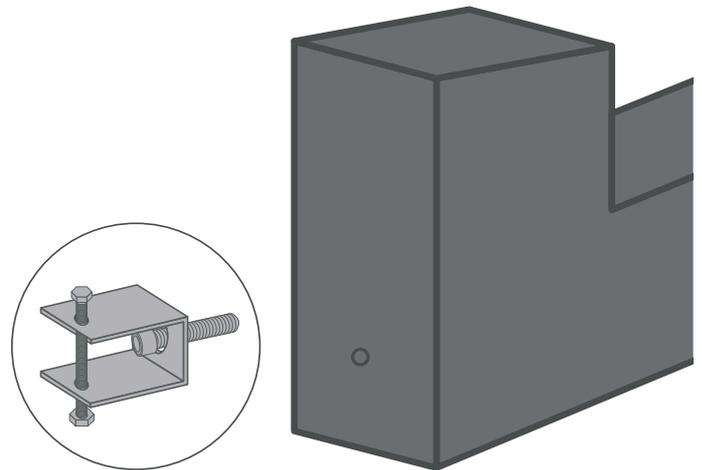
Phase 1: Laying of all the modules of a row (landscape or portrait)



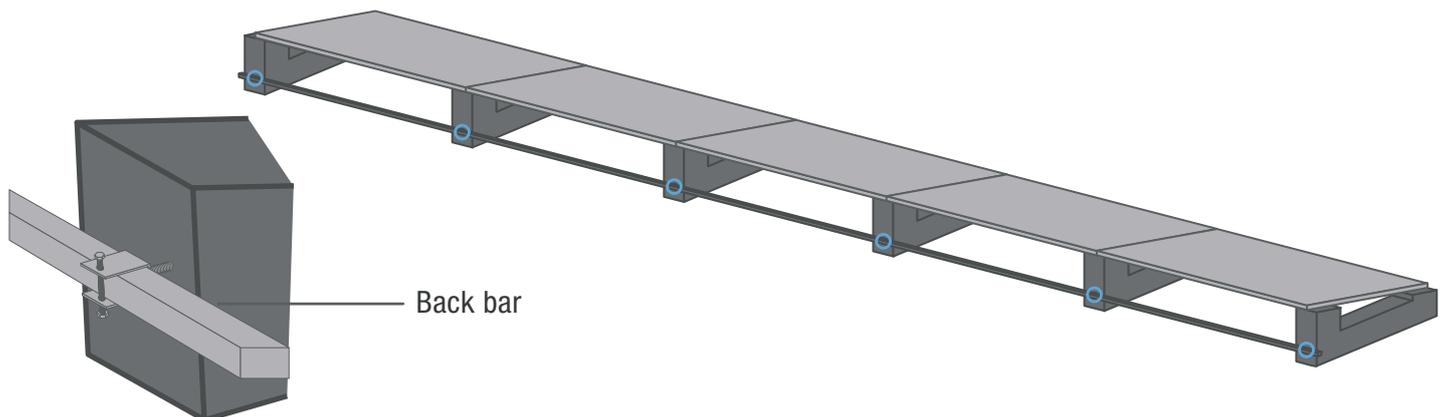
### Phase 2: Back clamp kit



### Phase 3: Fastening of the clamp on the rear ballast



### Phase 4: Back bar assembly

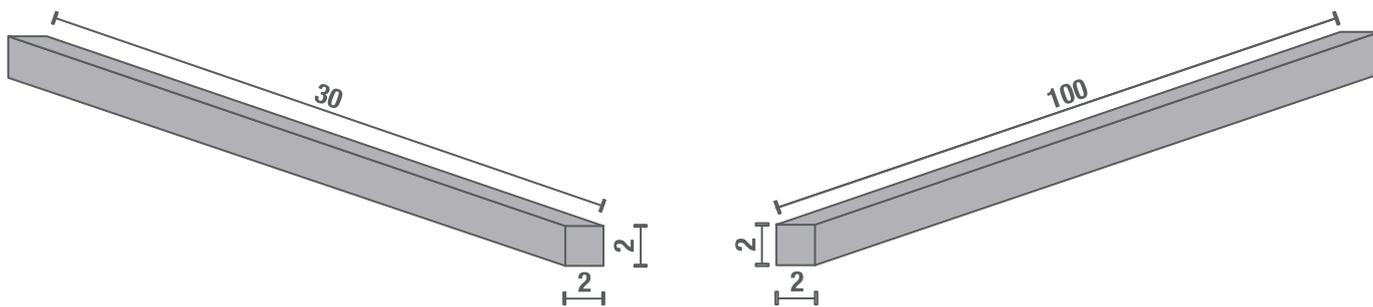


## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

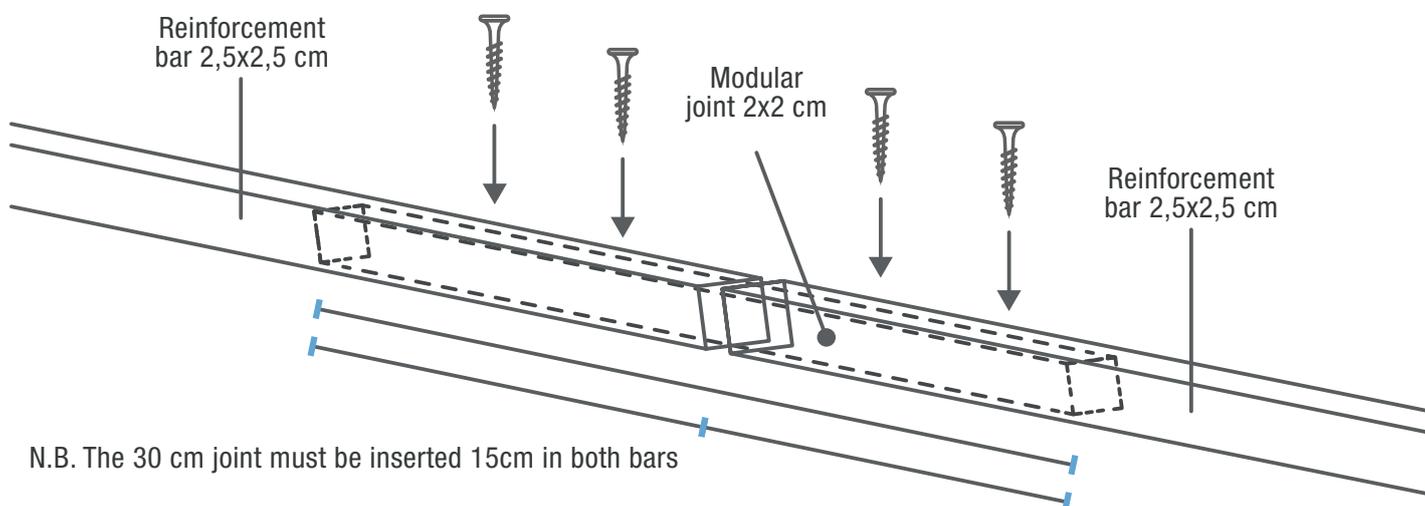
### E 03- Assembly of joints

Joint for square section reinforcement bar  
20x20x1.5 mm L = 30 cm

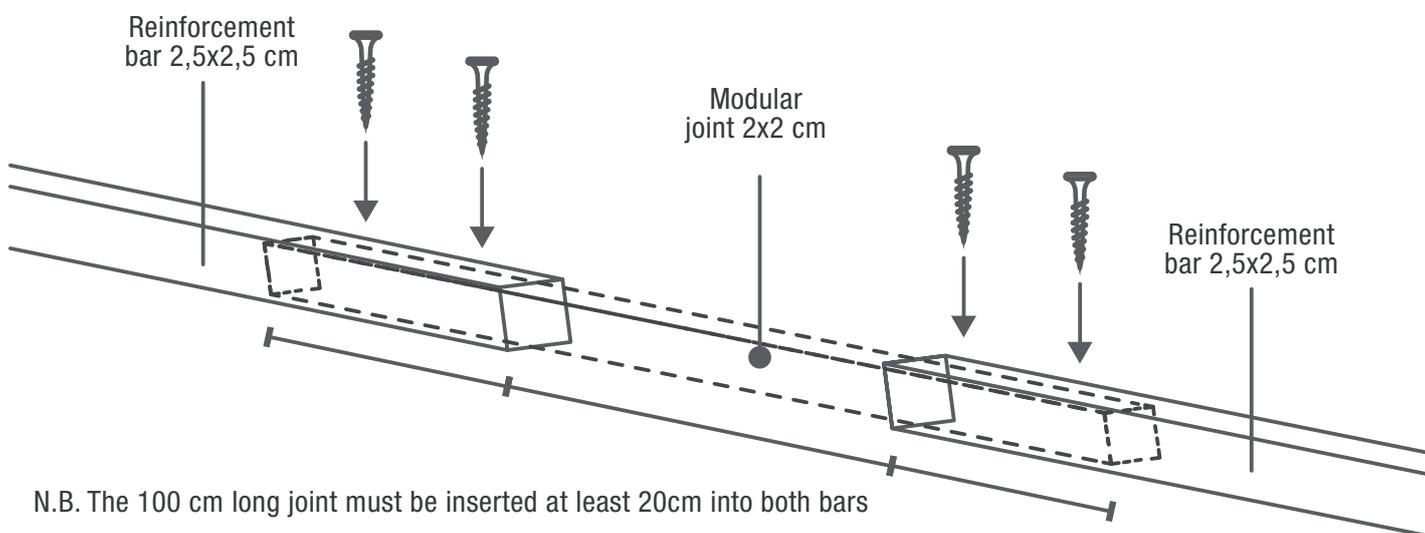
Modular joint for square section reinforcement bar  
20x20x1.5 mm L = 30 cm



#### Assembly of joint L = 30 cm



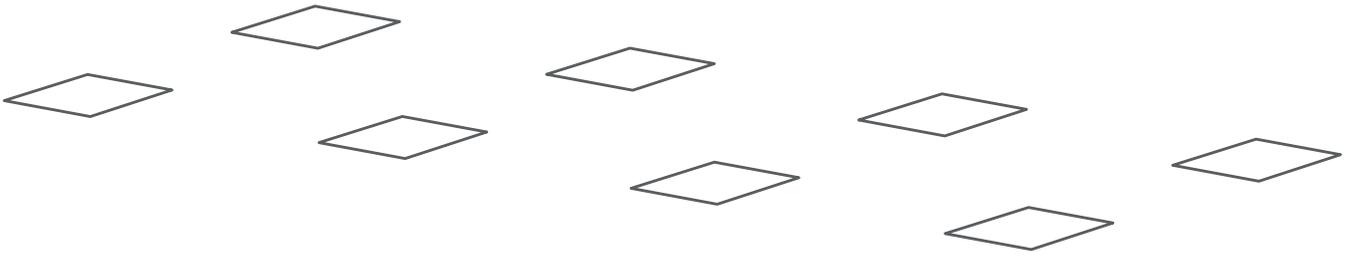
#### Assembly of modula joint L=100 cm



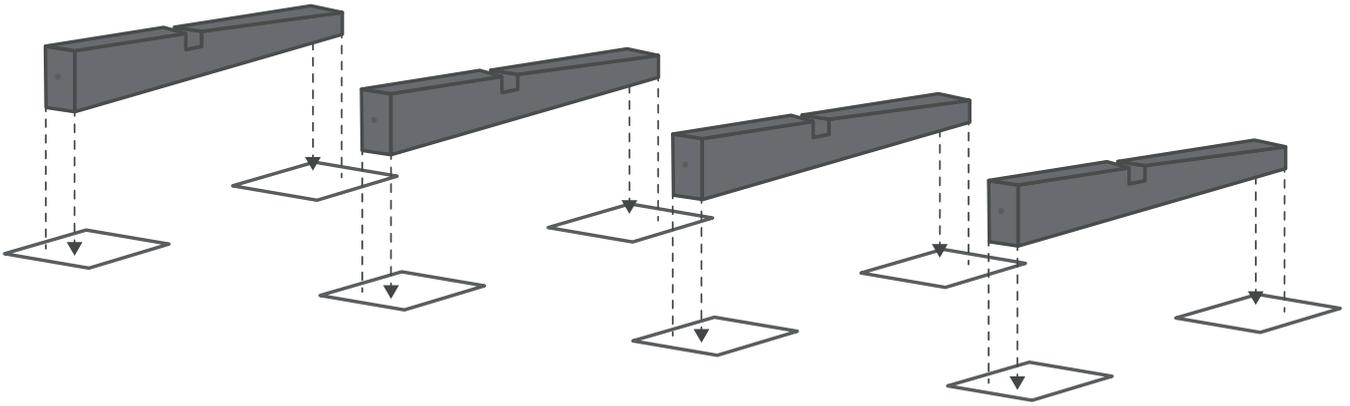
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 04- Assembly sequence of additional weights (35Kg and 50Kg)

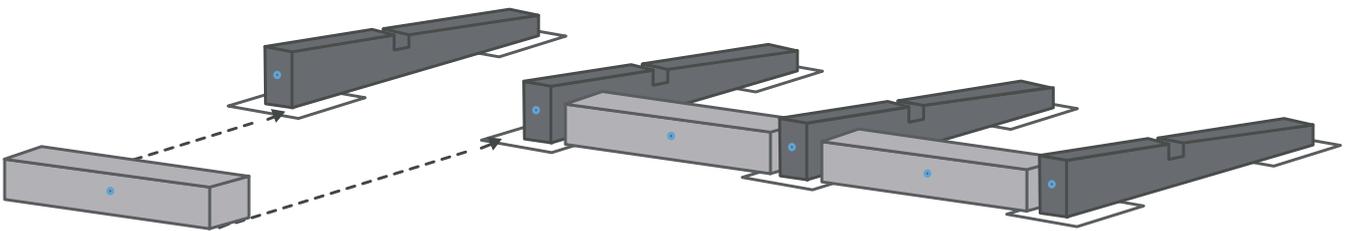
#### 1- Laying of the sheaths



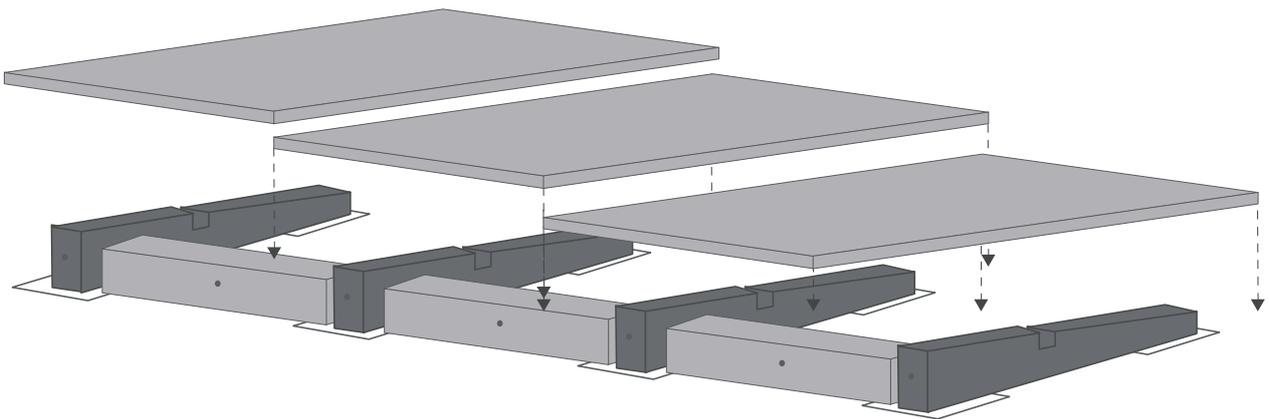
#### 2- Laying of the ballast on the sheaths



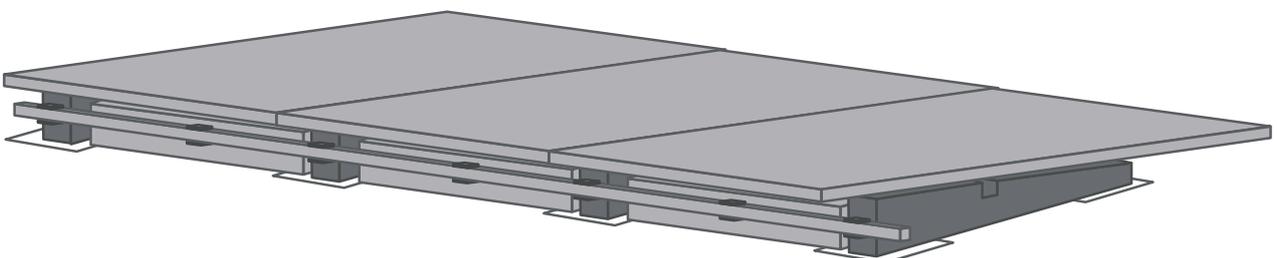
#### 3- Insertion of weights



#### 4- Laying of the PV panels



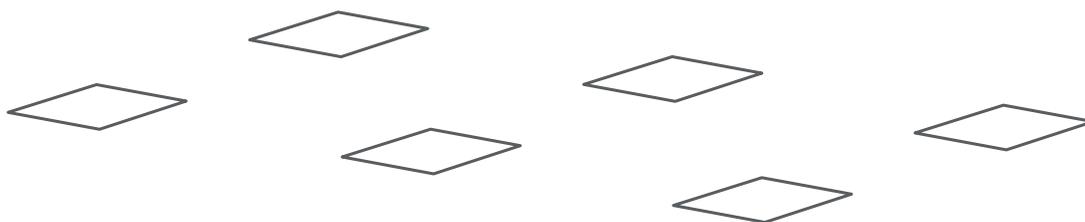
#### 5- Assembly of back bar



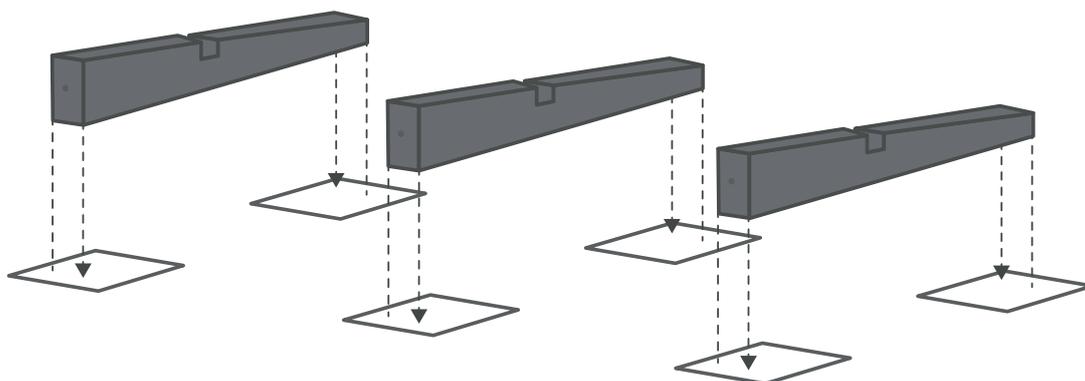
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 05- Assembly sequence of additional ballasts

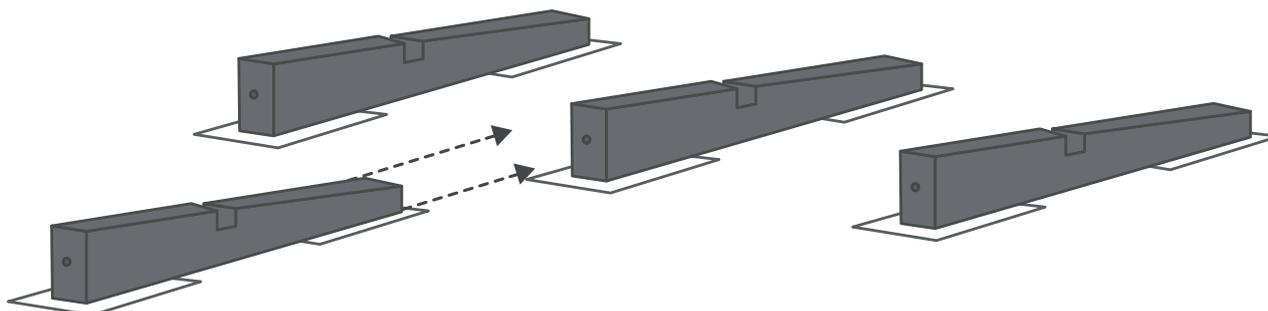
1- Laying of the sheaths



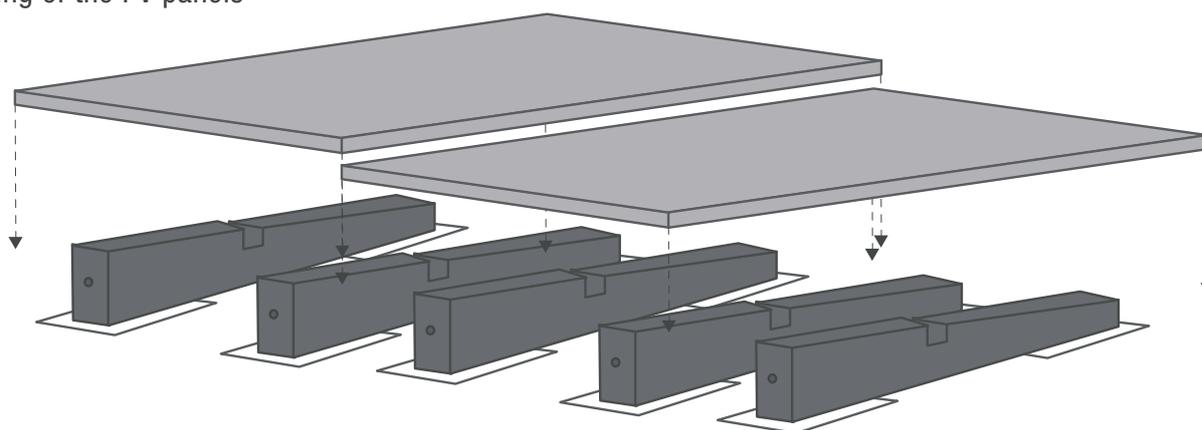
2- Laying of the ballast on the sheaths



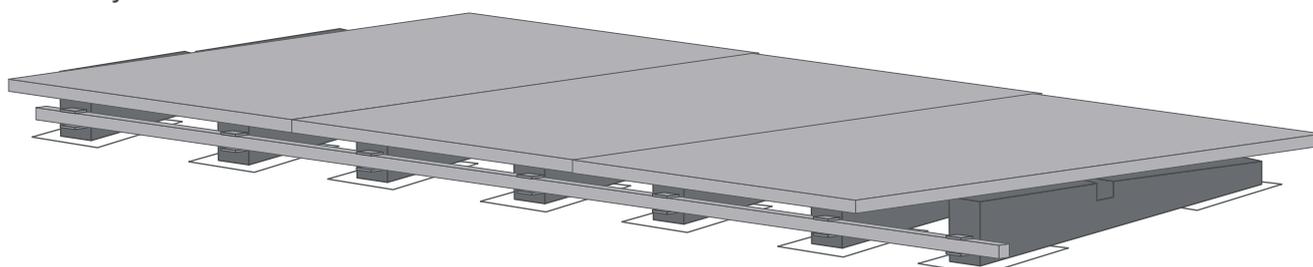
3- Insertion of additional ballast



4- Laying of the PV panels



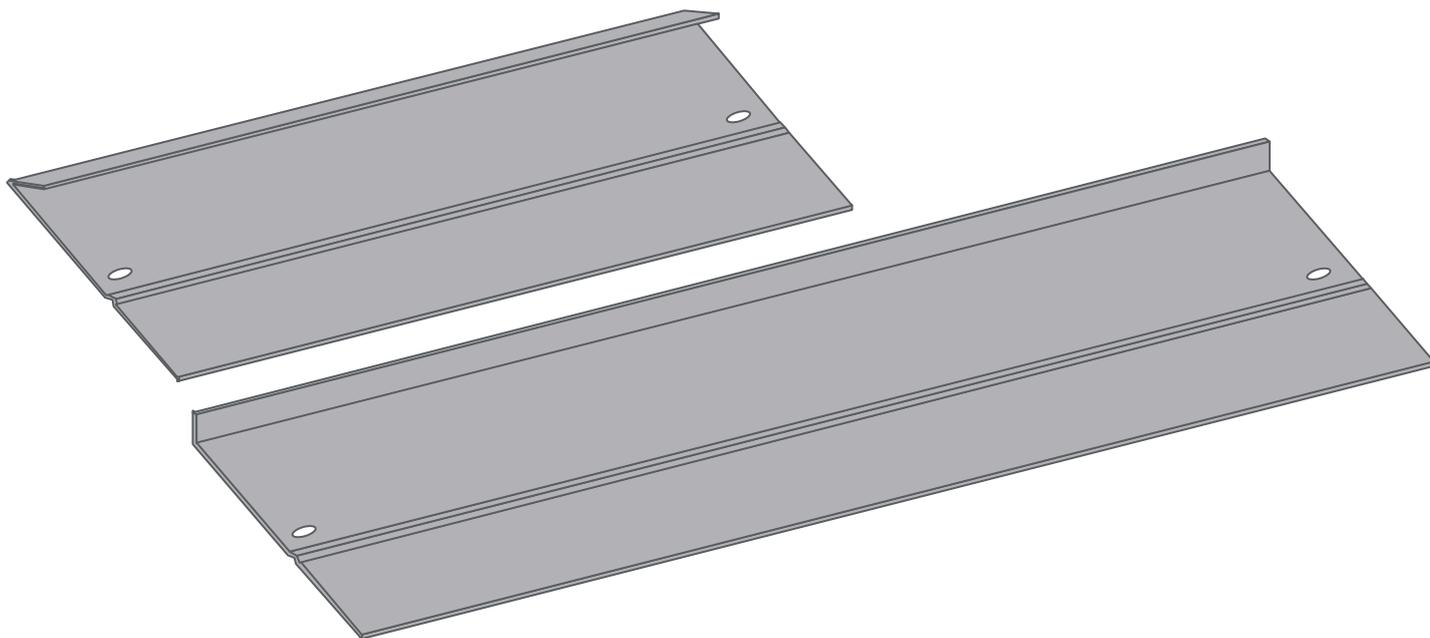
5- Assembly of back bar



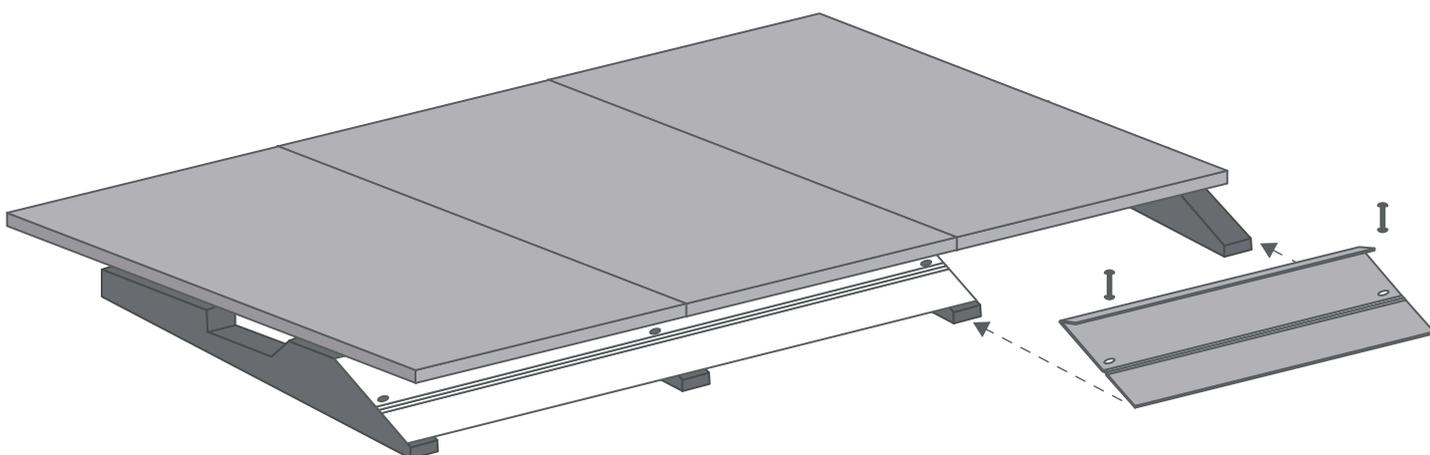
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 06- Assembly of carter 10°

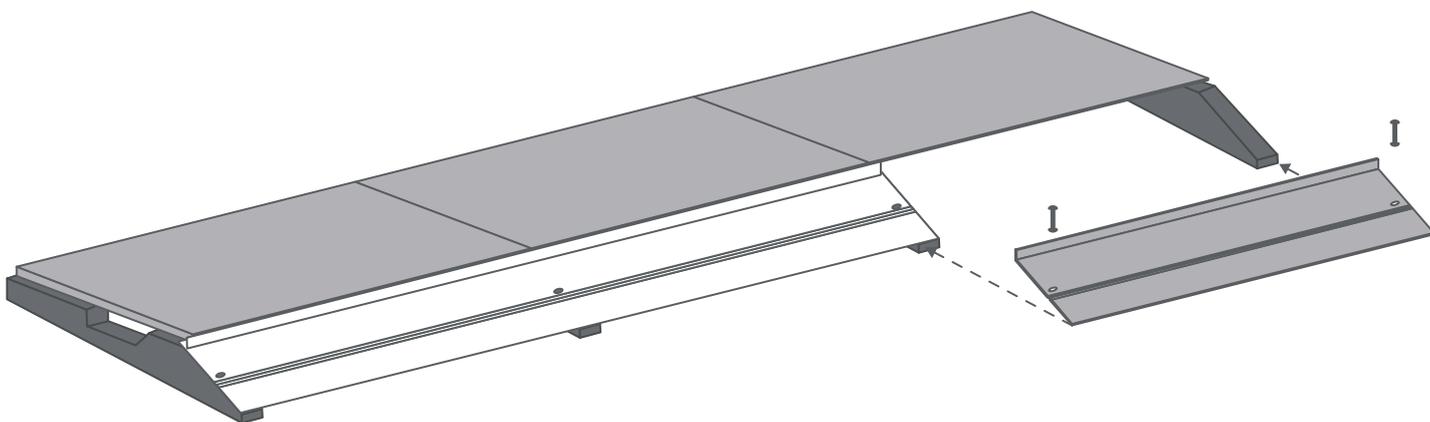
Carter assembly



Carter assembly

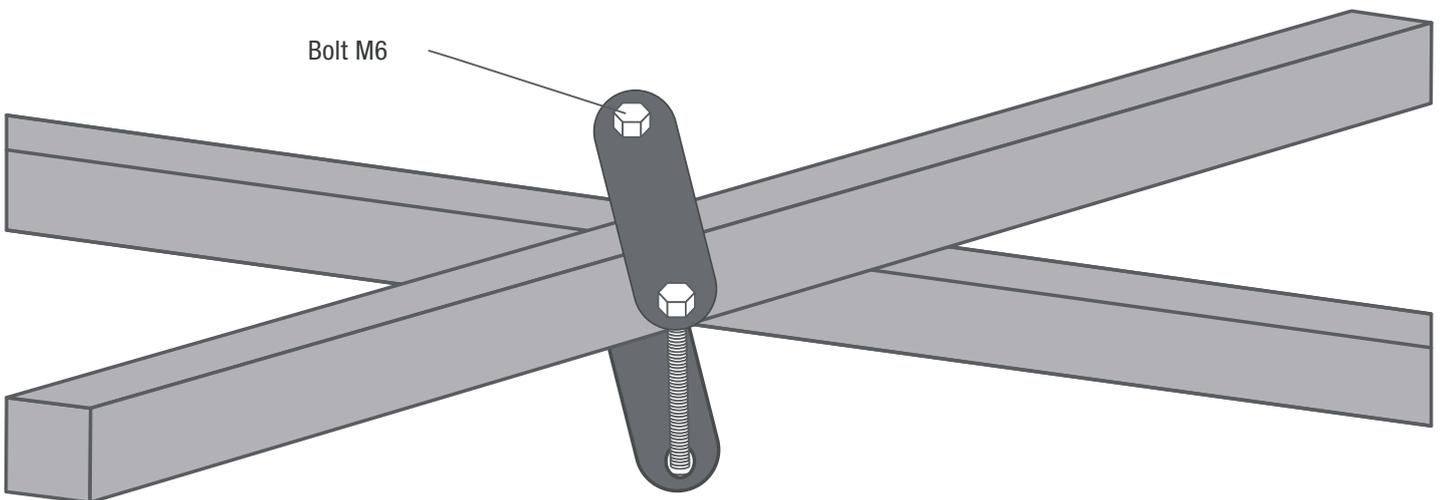
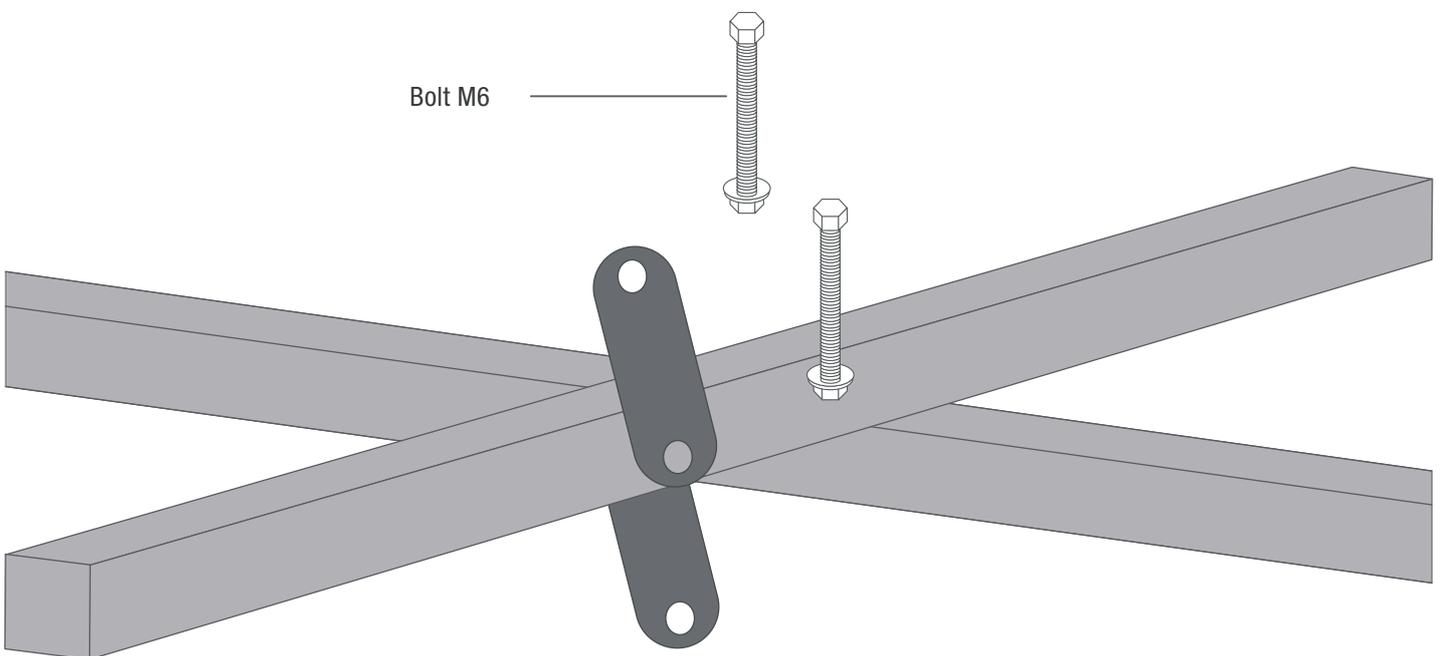
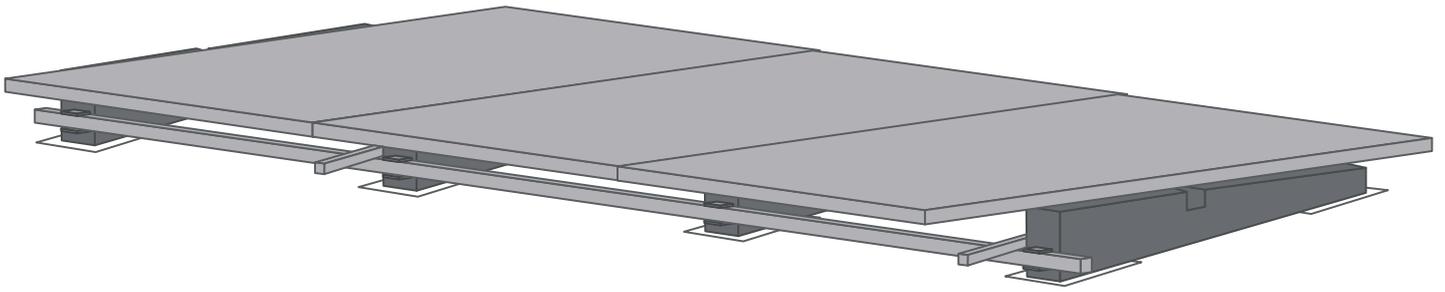


Carter assembly



## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 07- Assembly of the plate for bar crossing



## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 08- Assembly of hanger bolt

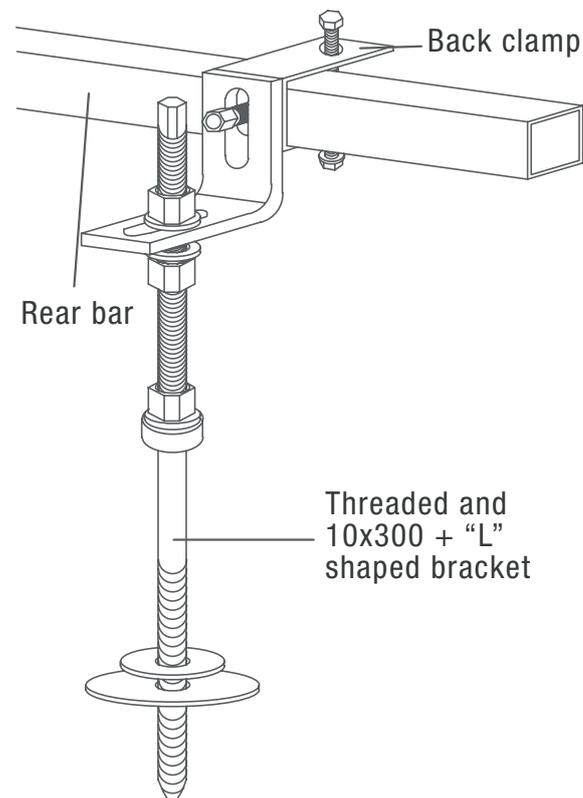
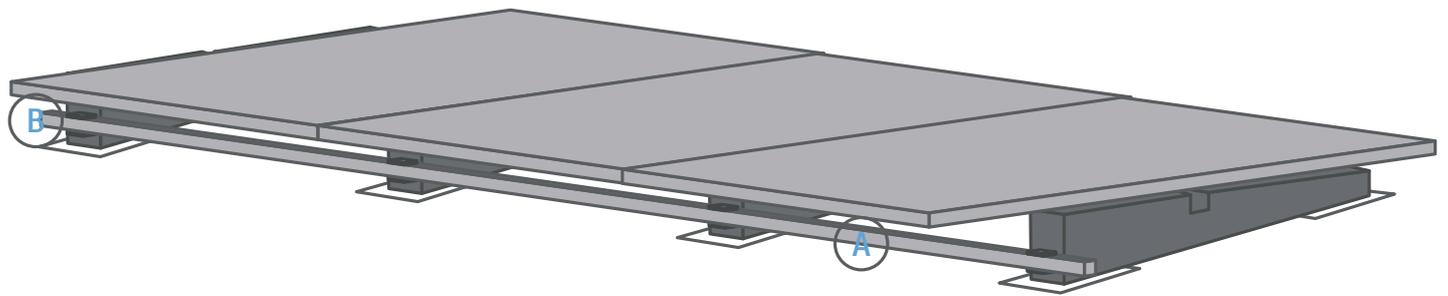
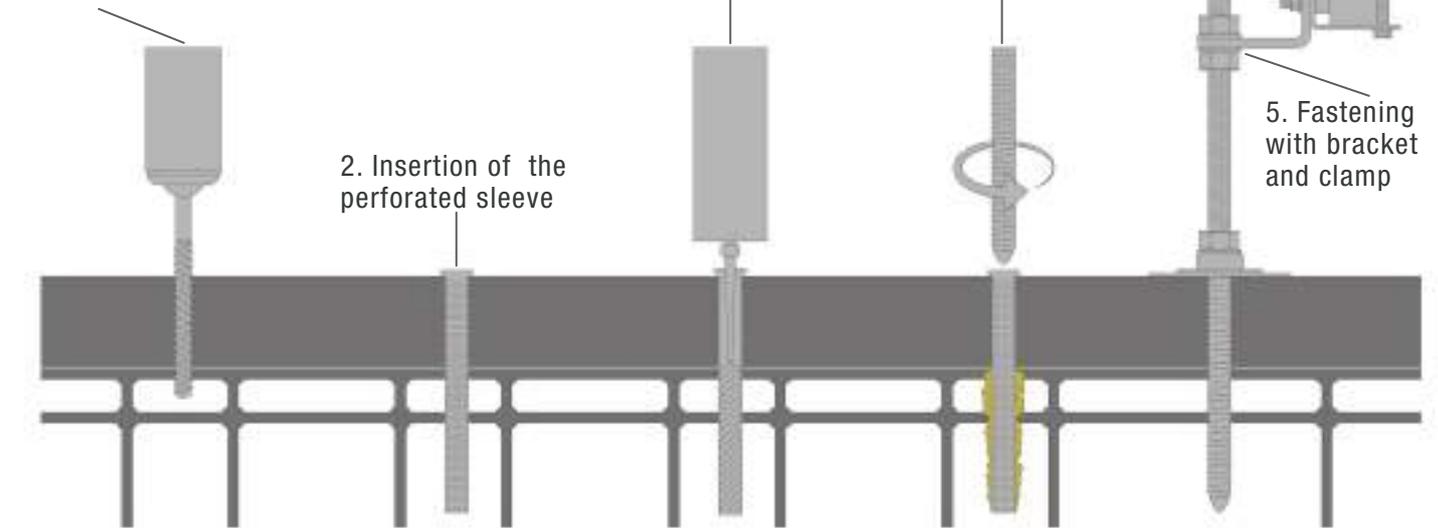
1. Drilling N.B. - Clean dust and residue

2. Insertion of the perforated sleeve

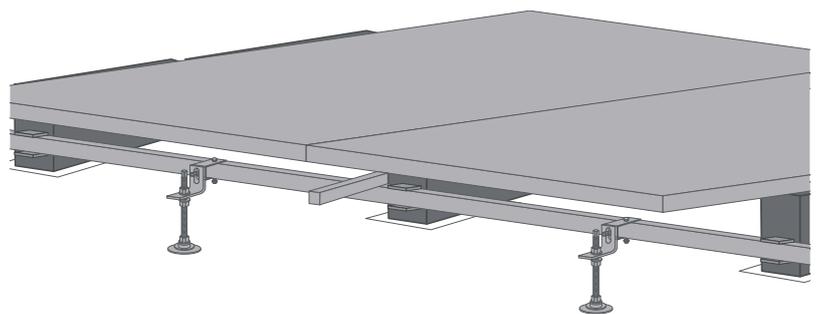
3. Injection of the resin anchor

4. Insertion of the screw

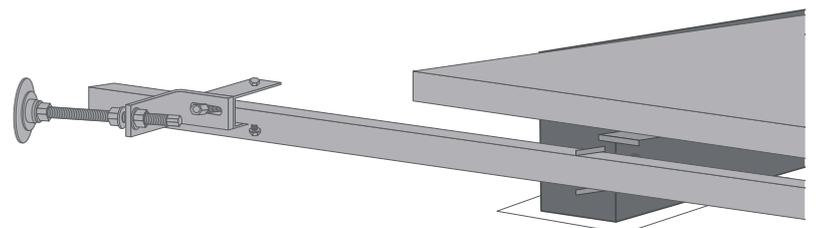
5. Fastening with bracket and clamp



A - Fastening to flat surface



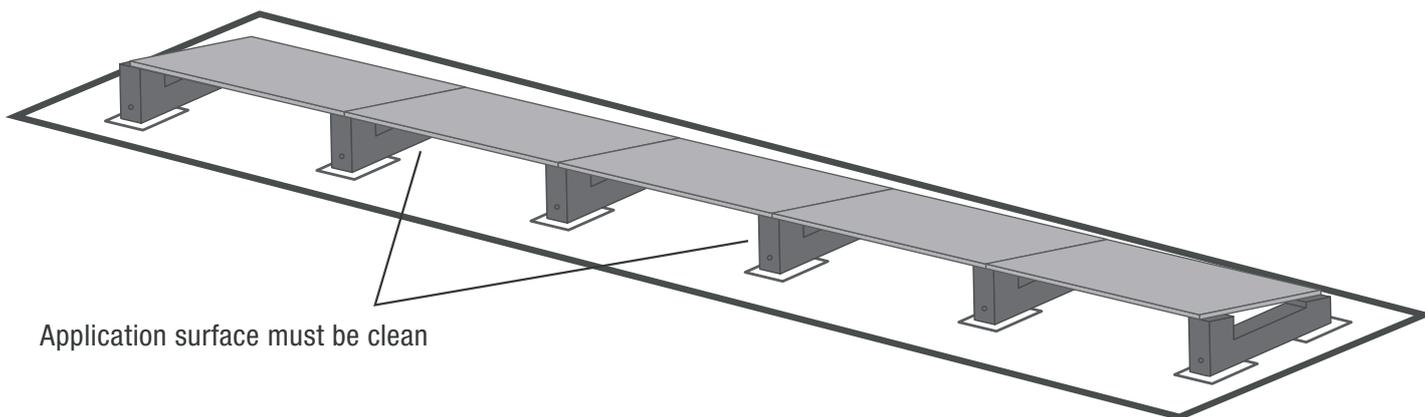
B - Fastening to parapet



## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

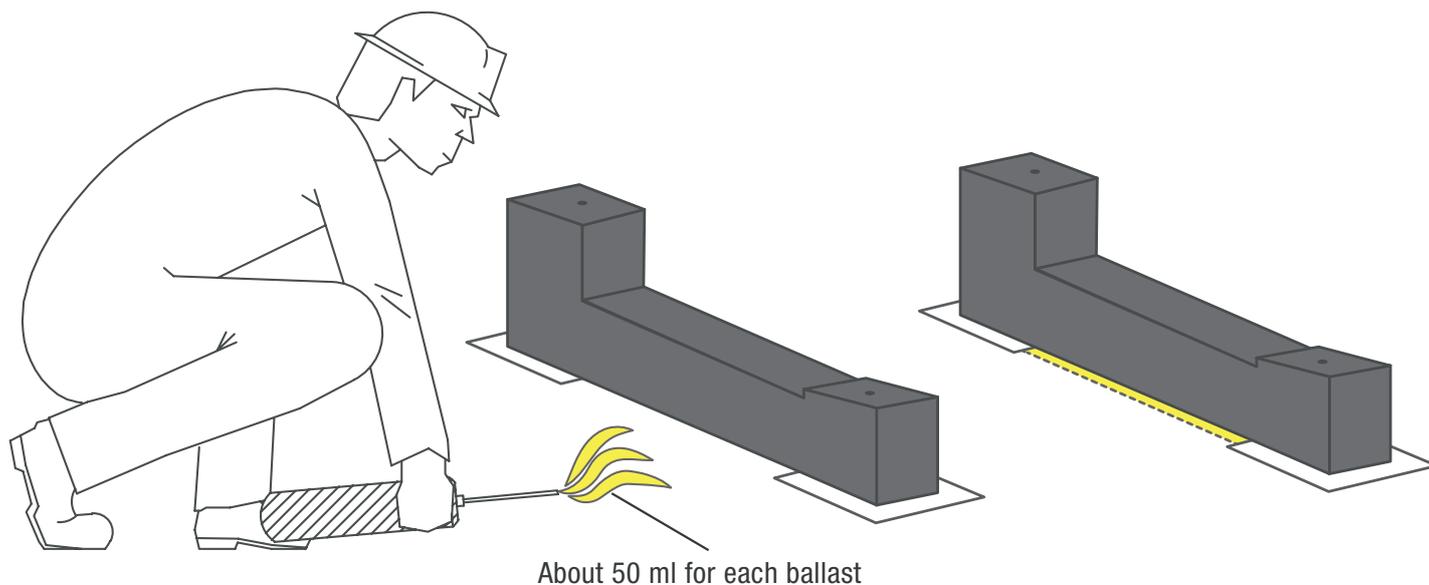
### E 09- Application guide of polyurethane foam

Phase 1: Installation of the concerned panels (landscape or portrait)

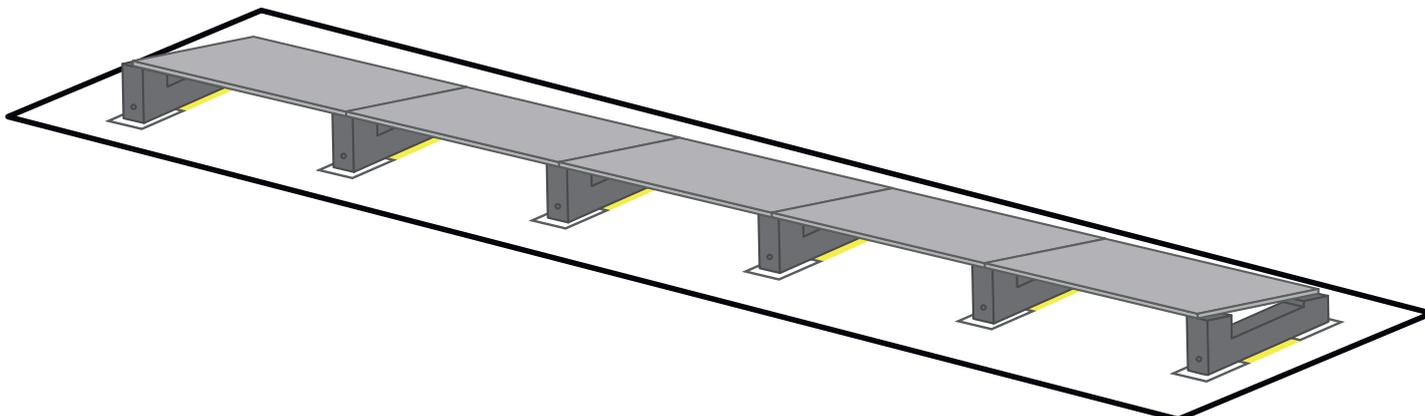


... Once the row consisting of panels, ballasts, clamps, and any accessories has been set up, it is necessary to proceed gradually ...

Phase 2: Apply the foam with the appropriate dispenser



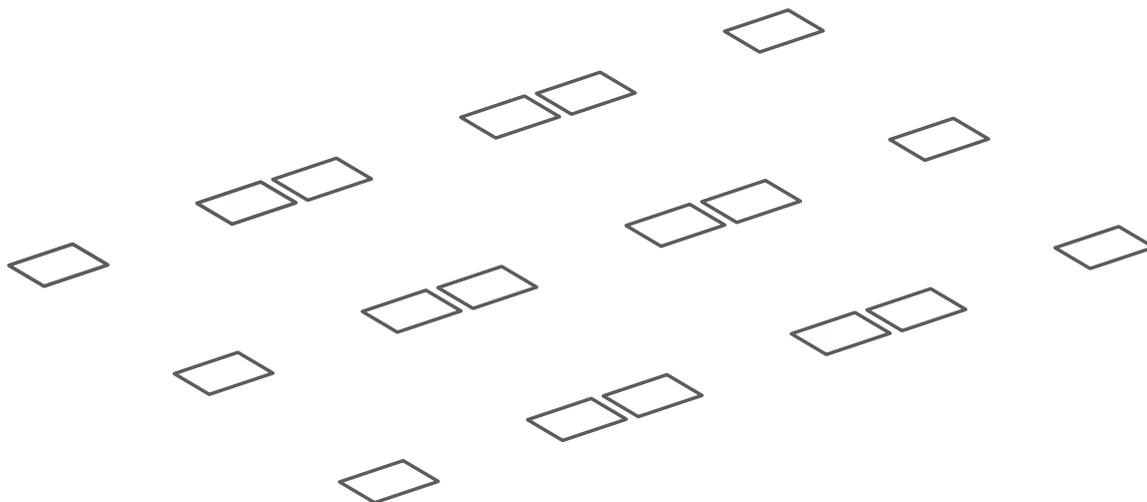
Phase 3: Repeat the operation with all the ballasts concerned



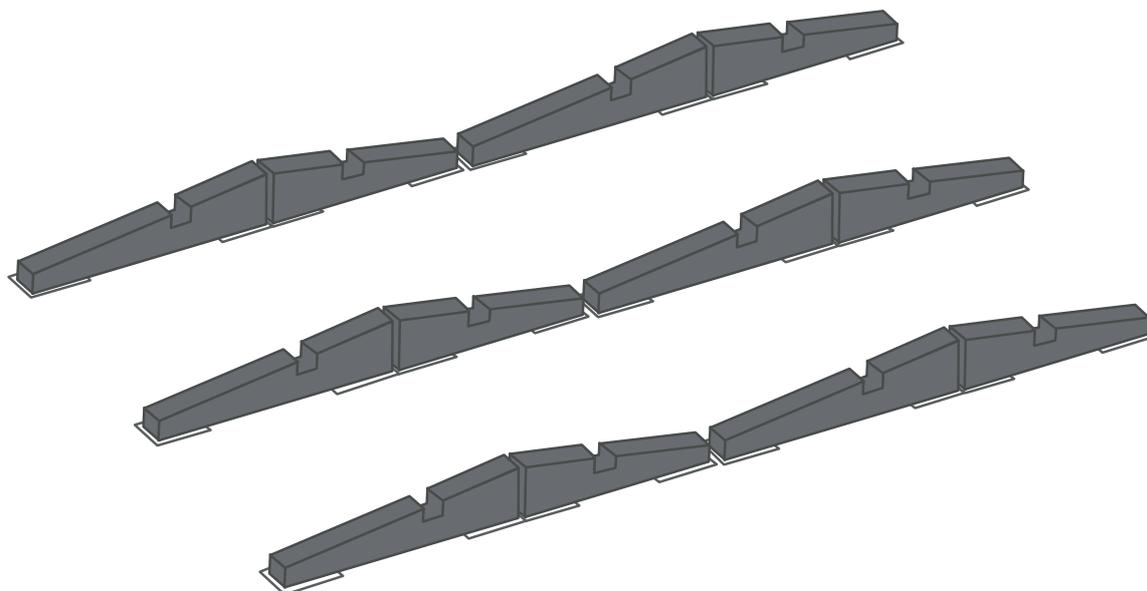
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E10- Assembly sequence of east-west panels

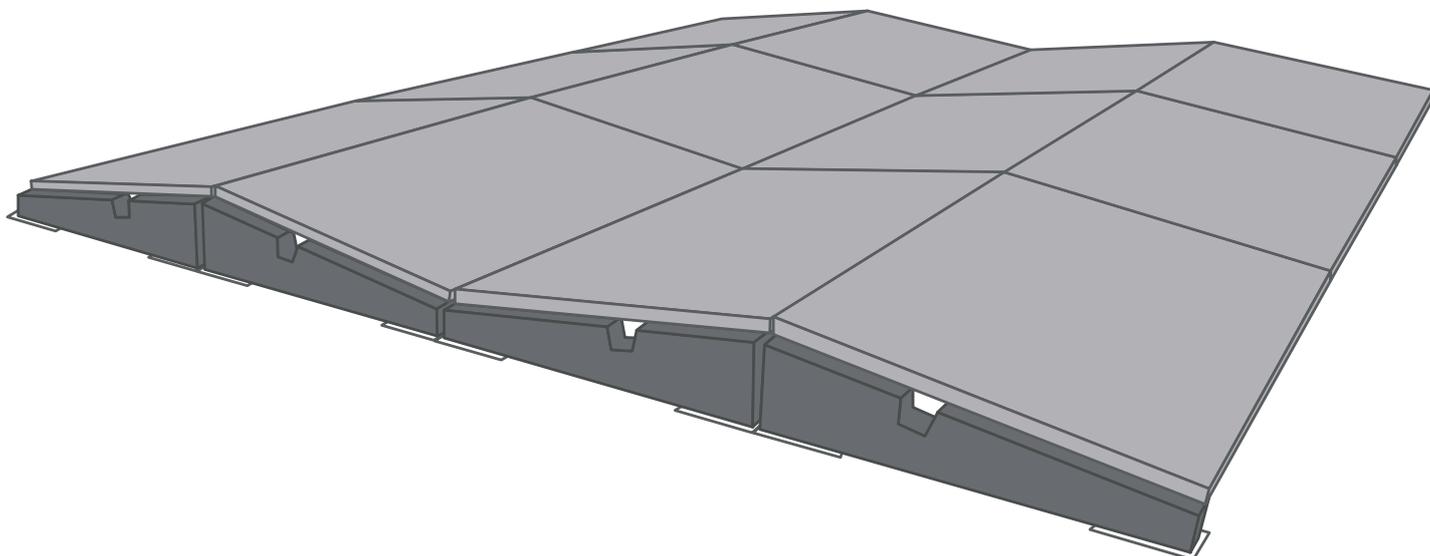
Phase 1- Laying of the sheaths



Phase 2- Laying of the ballast on the sheaths



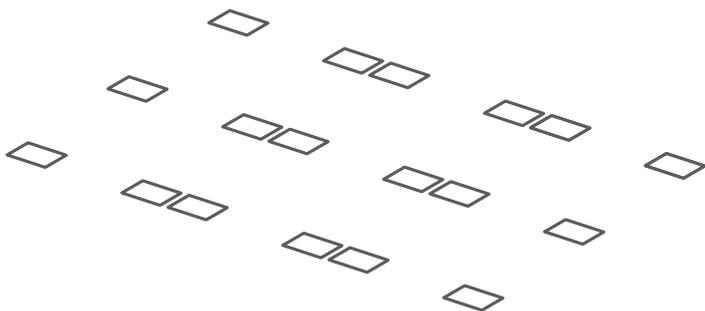
Phase 3- Laying of the PV panels



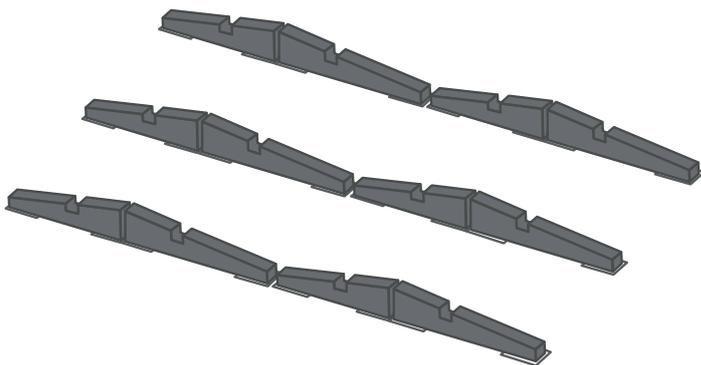
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 11- Assembly of east-west junction plate

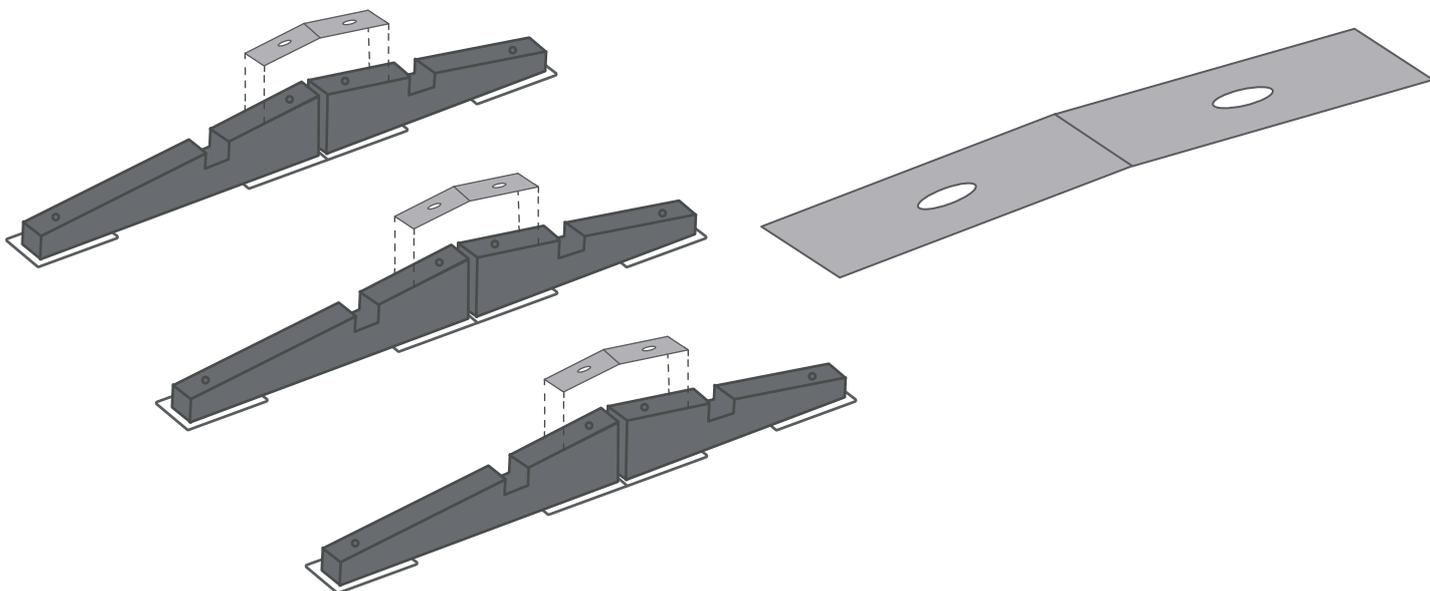
Phase 1- Laying of the sheaths



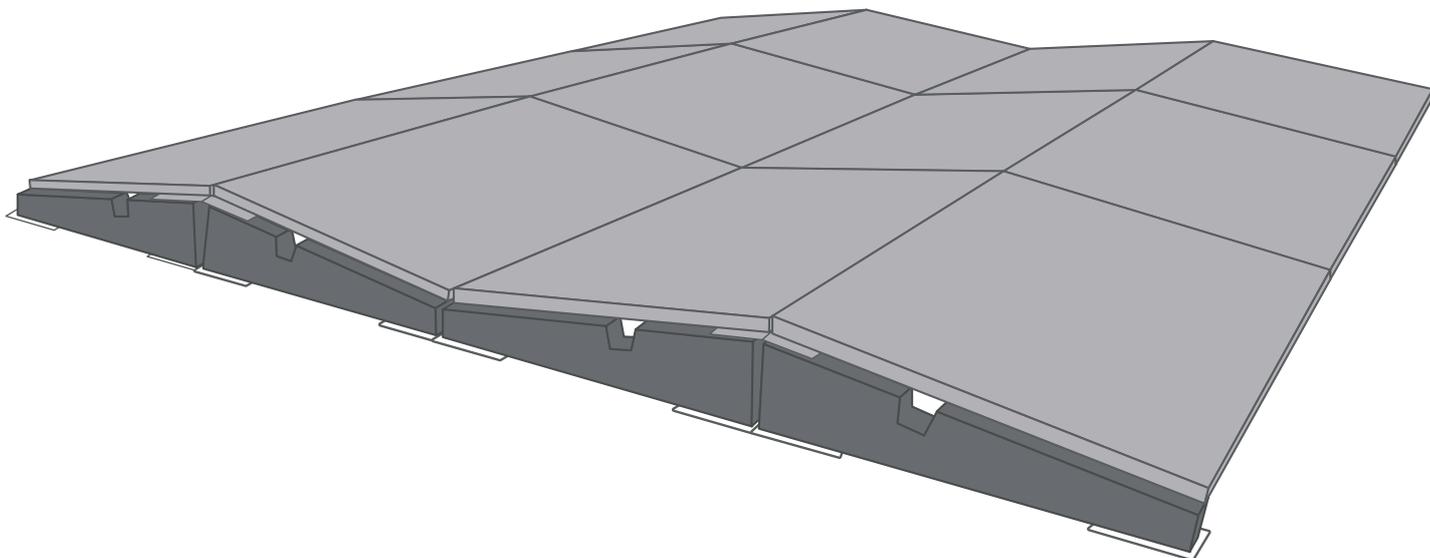
Phase 2- Laying of the ballast on the sheaths



Phase 3- Assembly of east-west junction plate



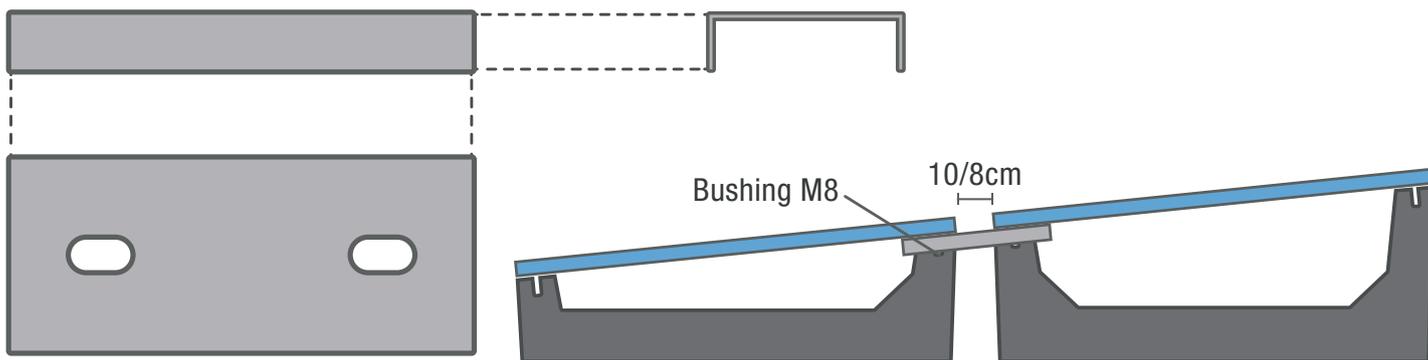
Phase 4- Laying of the PV panels



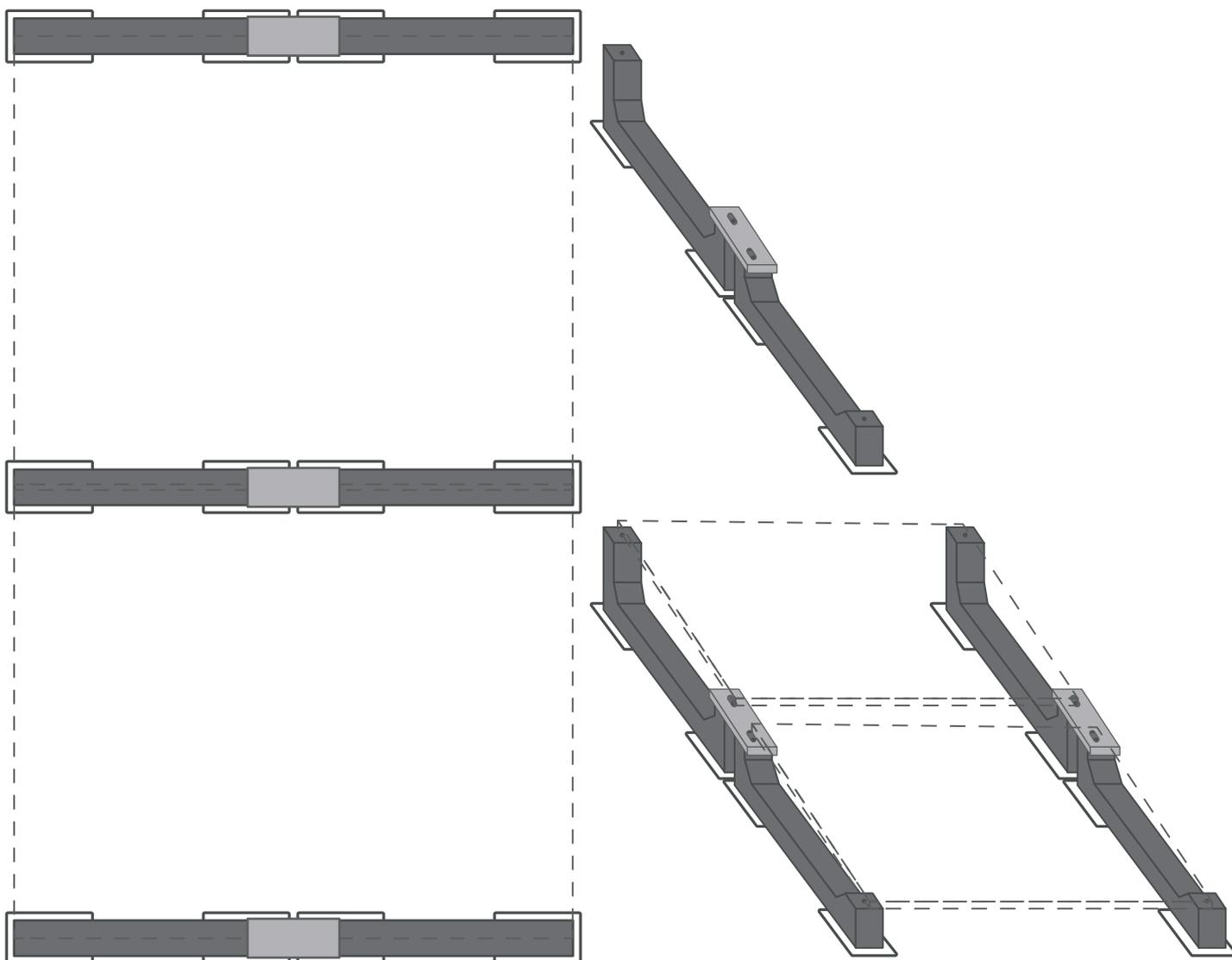
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 12- Assembly of junction plate for 5° sail-shaped system

“C” junction plate



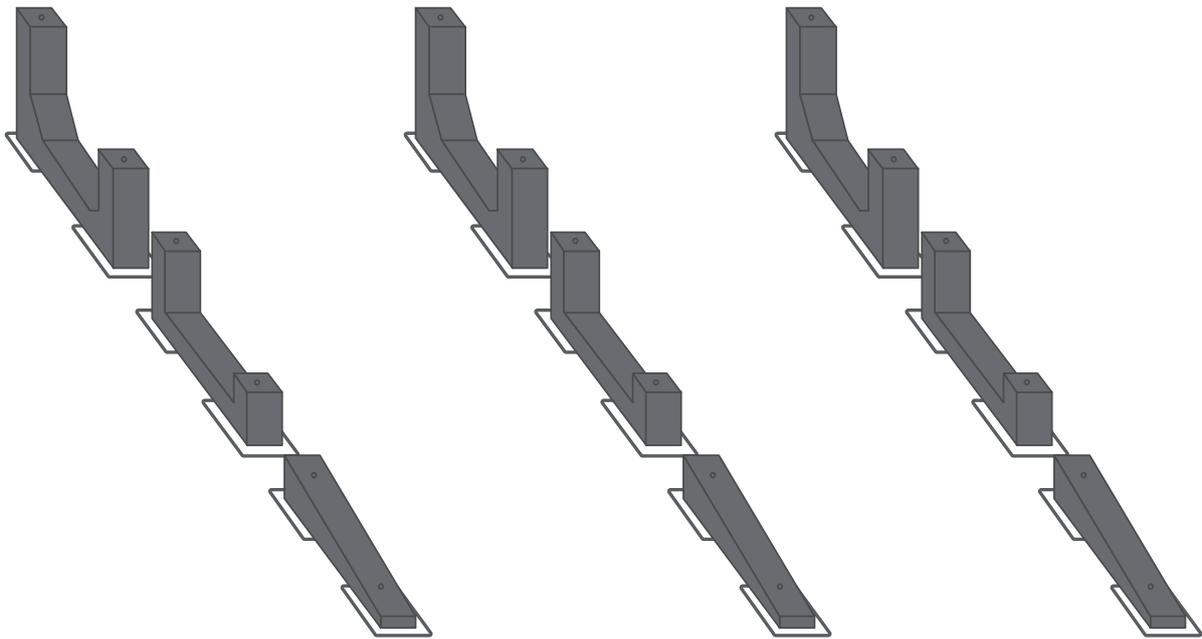
Assembly of junction plate



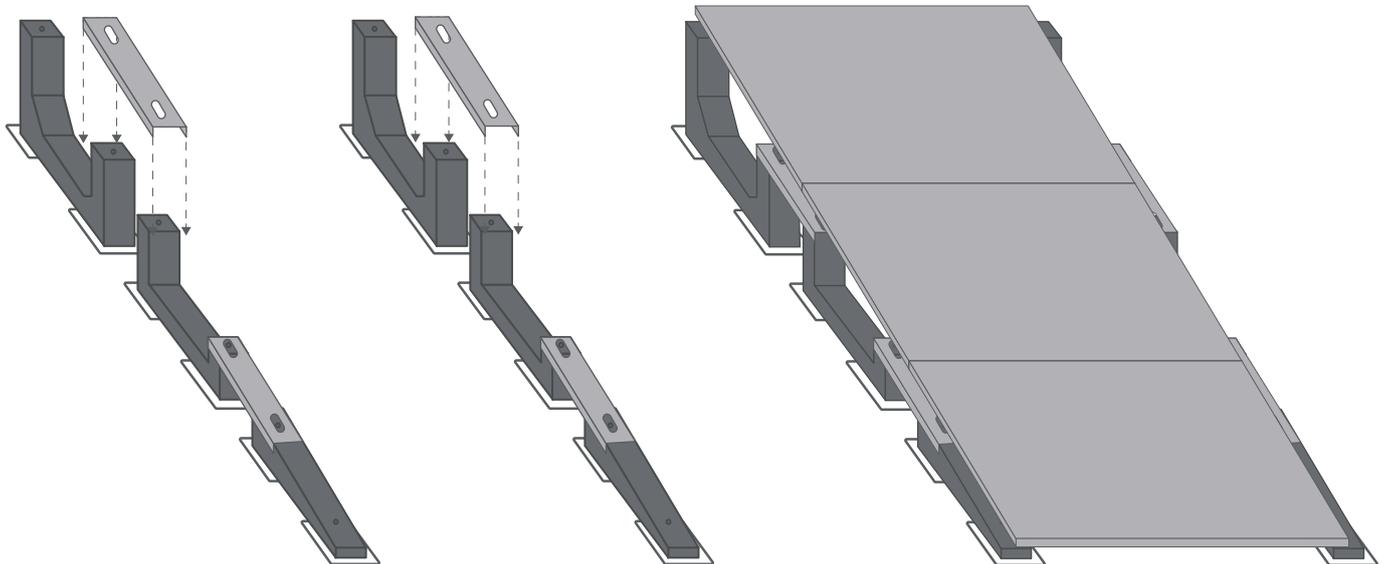
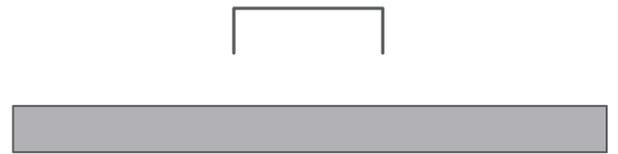
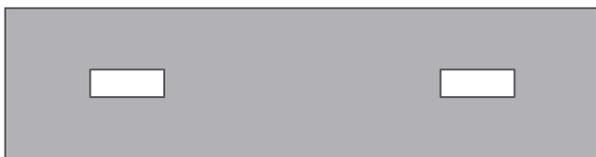
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 13- Assembly of junction plate for 11° sail-shaped system

Assembly of junction plate

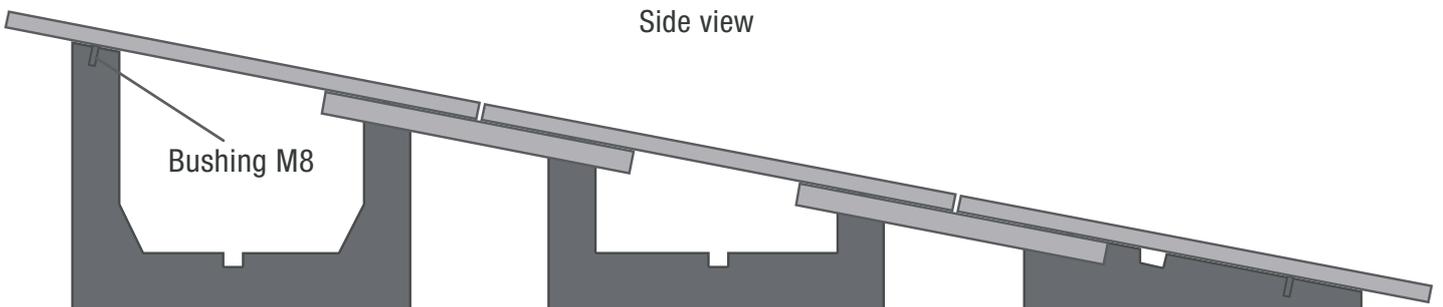


“C” junction plate



Assembly of junction plate

Side view



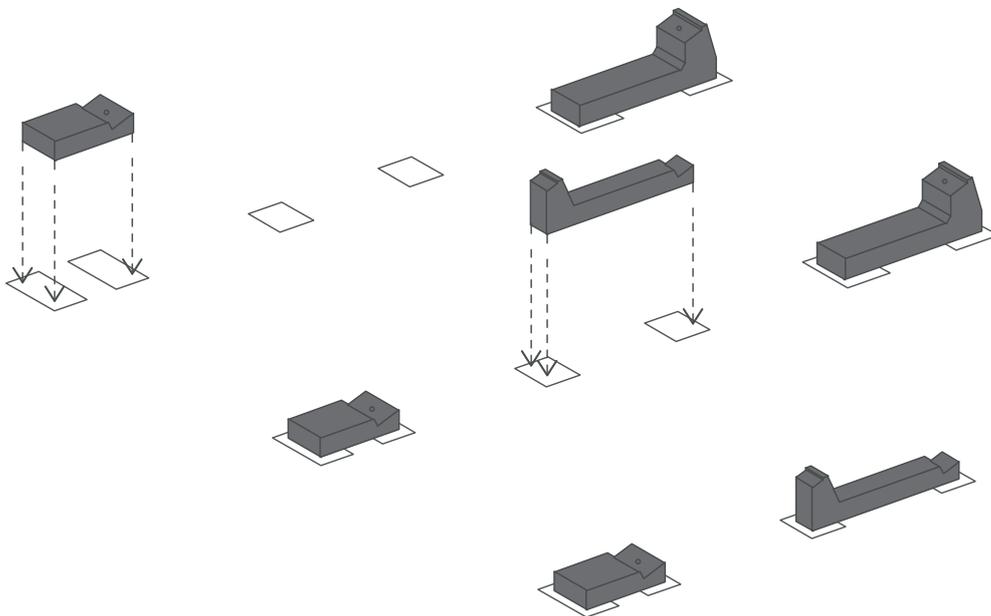
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 14- Assembly sequence of Connect System

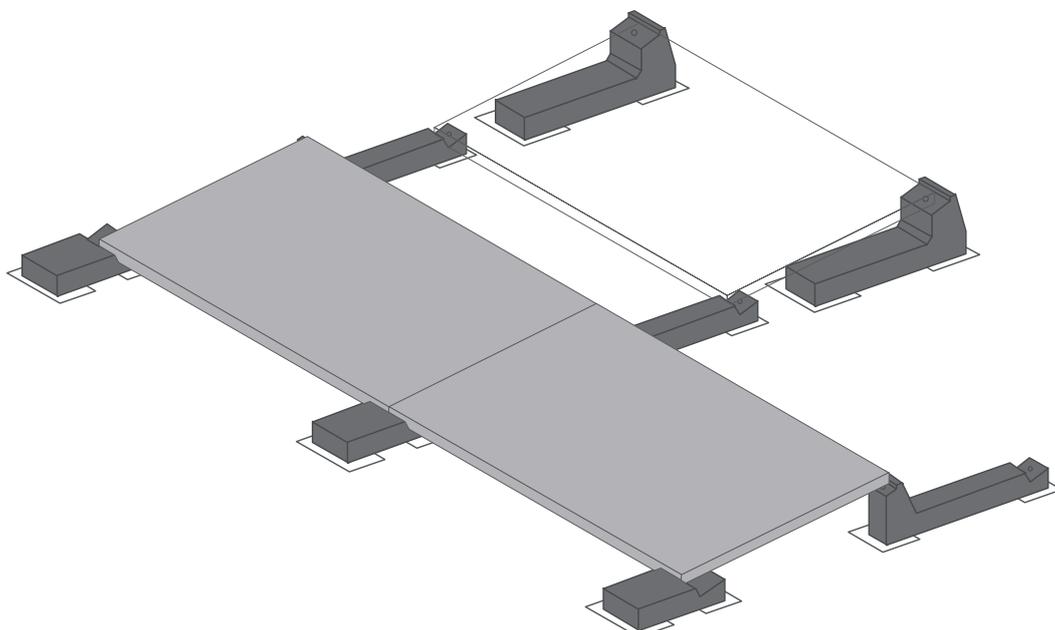
Phase 1: Laying of the sheaths



Phase 2: Laying of the ballast on the sheaths

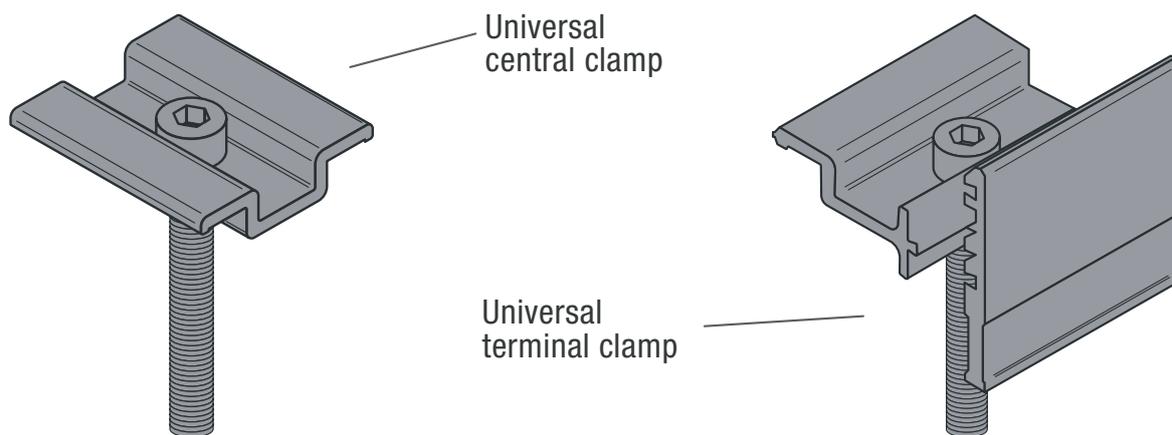


Phase 3: Laying of the PV panels

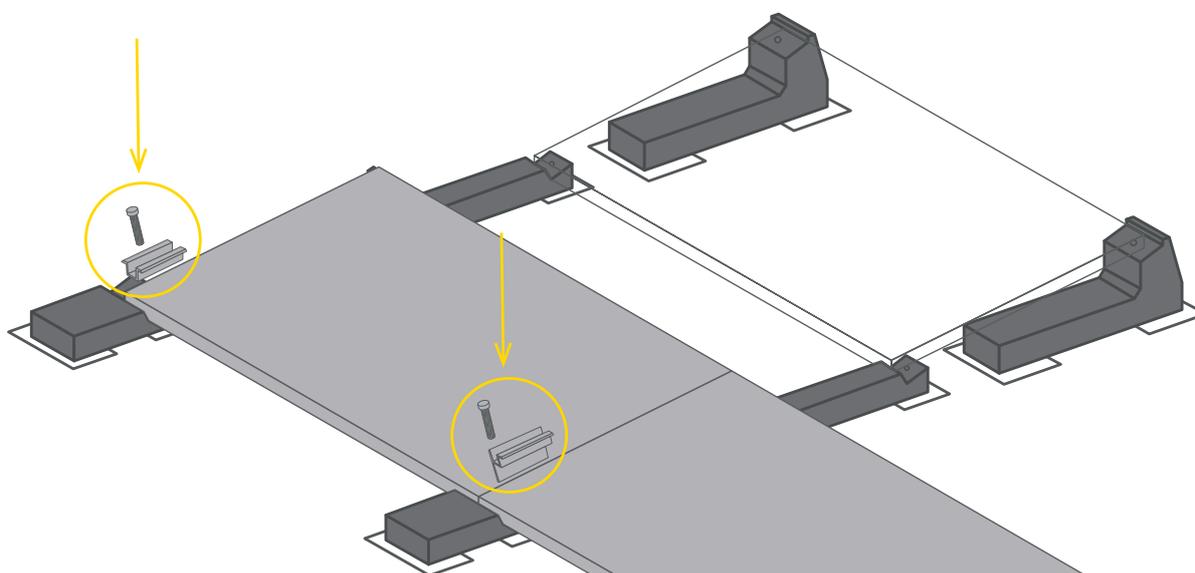


## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

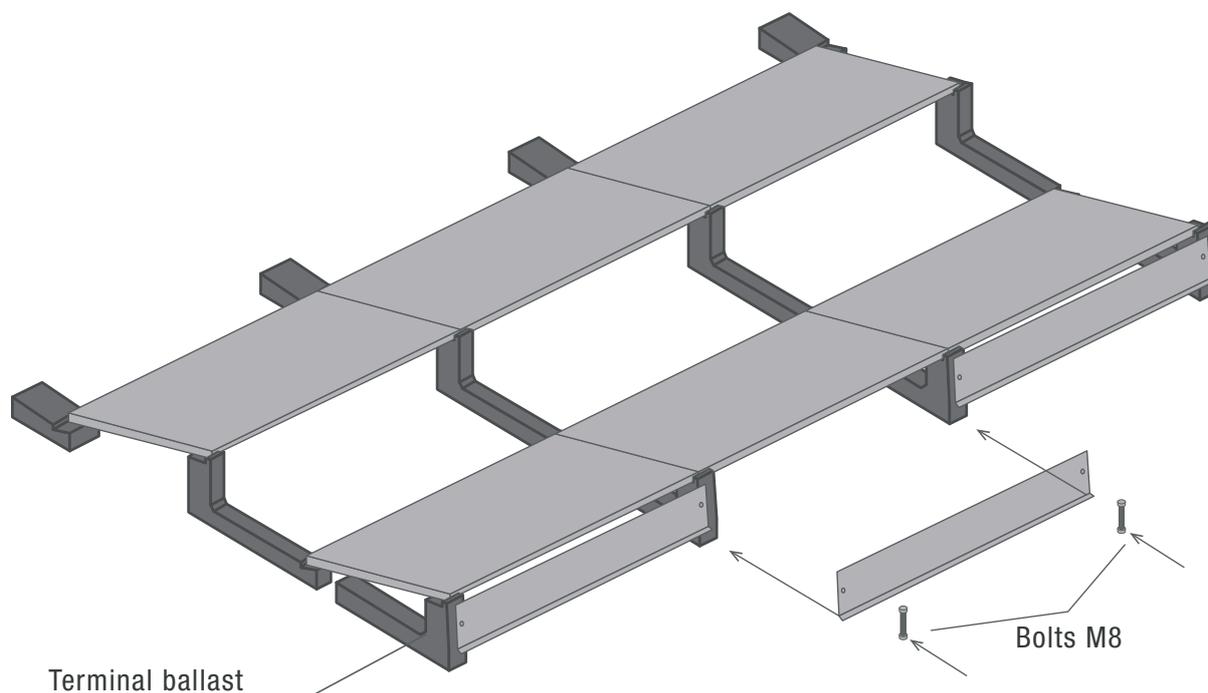
Phase 4: Preparation of the fixing clamps



Phase 5: PV panels fixing



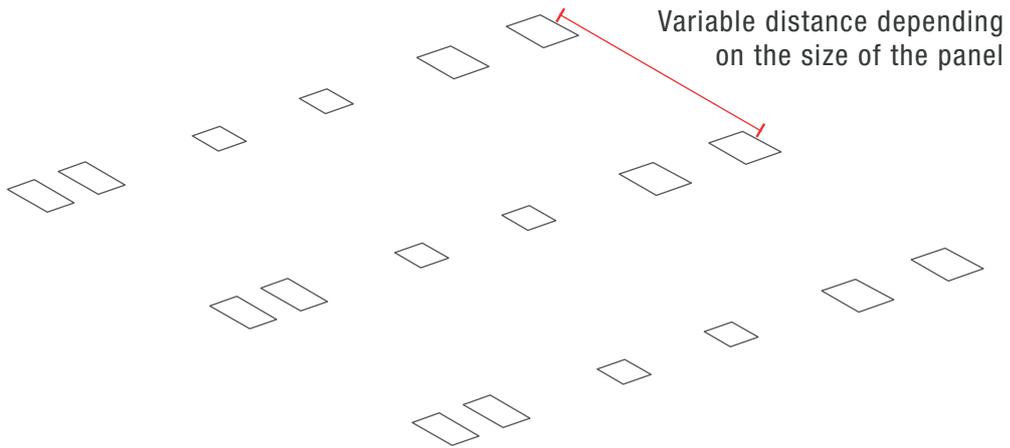
Phase 6: Assembly of the windbreaks (if it is necessary from the wind load calculations)



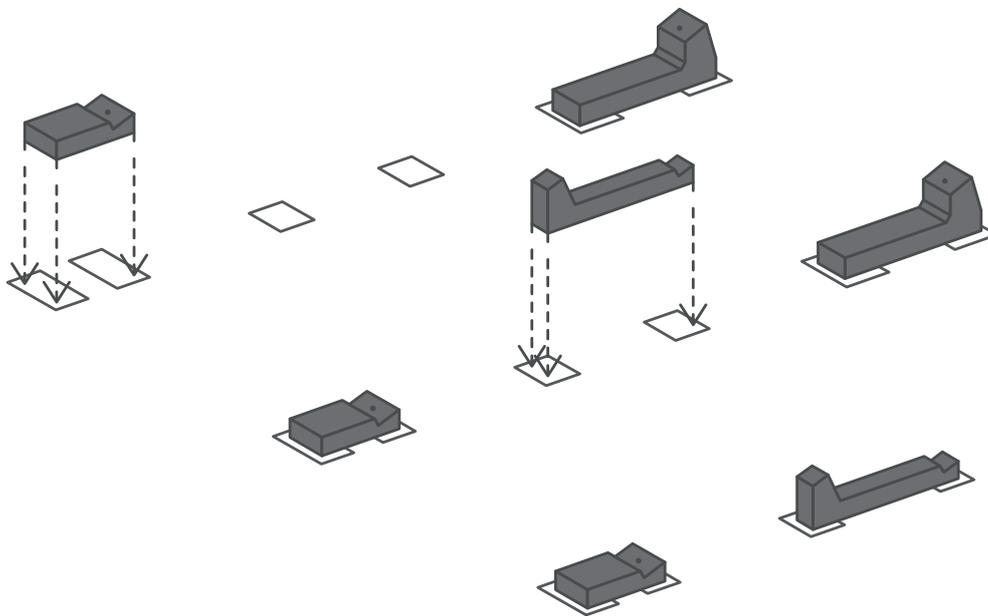
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 15- Assembly sequence of Connect System in portrait

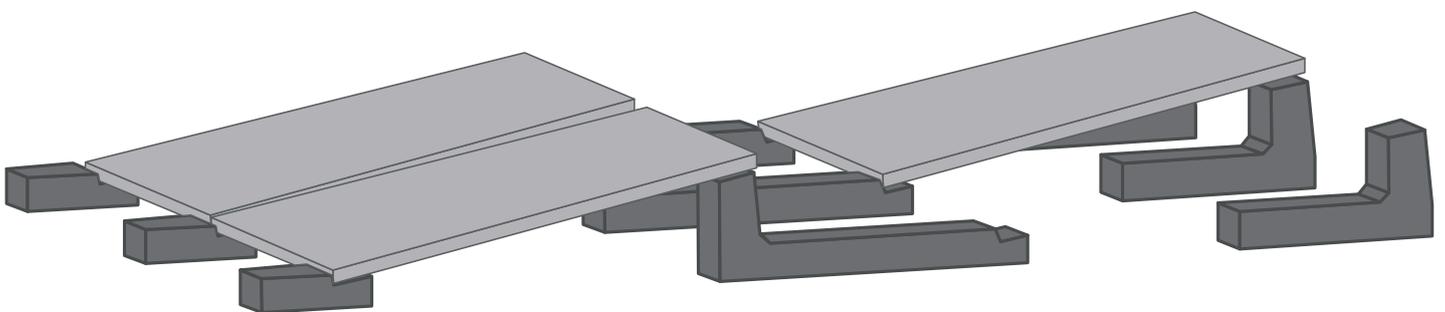
Phase 1: Laying of the sheaths



Phase 2: Laying of the ballast on the sheaths

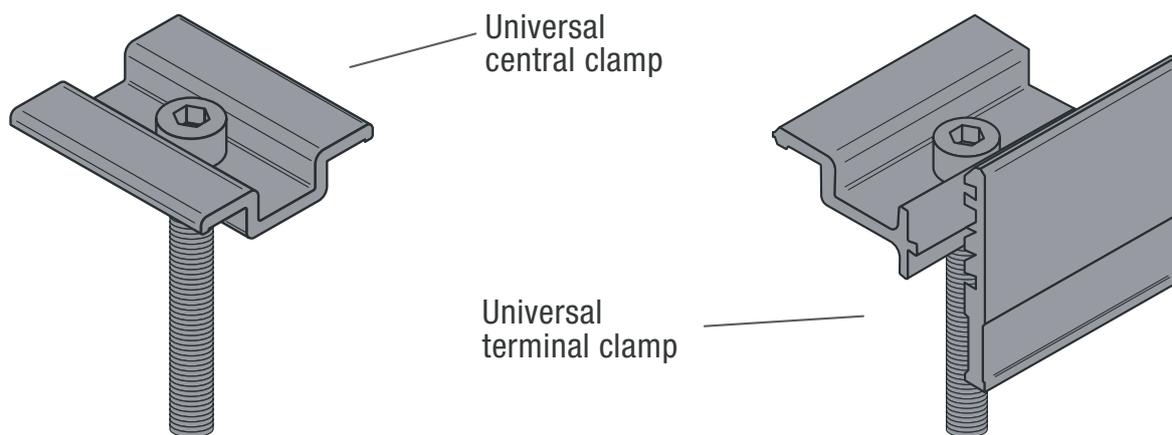


Phase 3: Laying of the PV panels

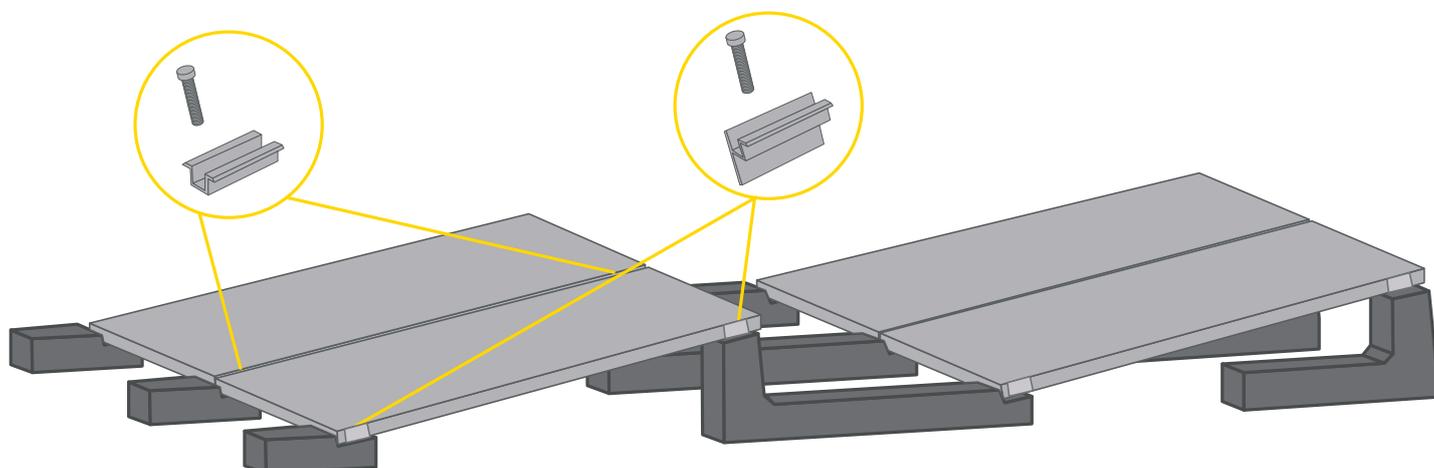


## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

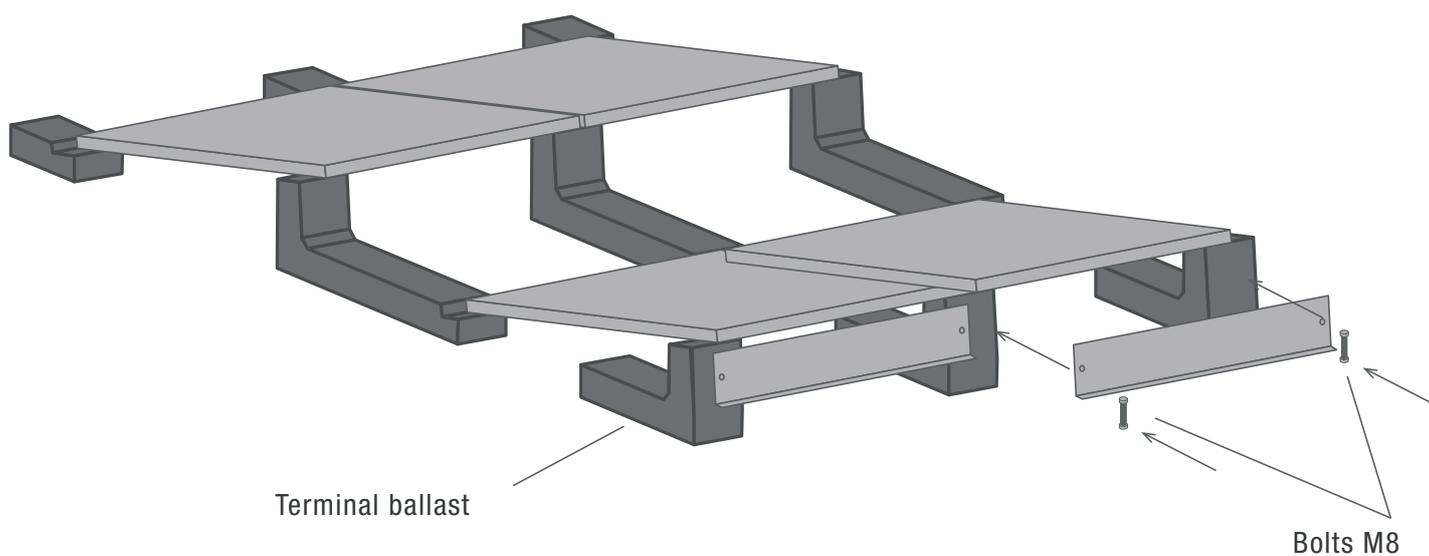
### Phase 4: Preparation of the fixing clamps



### Phase 5: PV panels fixing



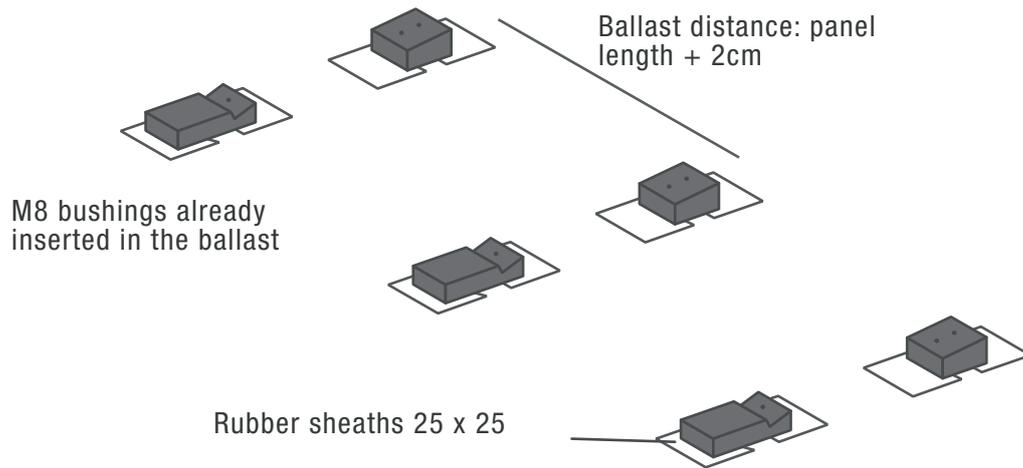
### Phase 6: Assembly of the windbreaks (if it is necessary from the wind load calculations)



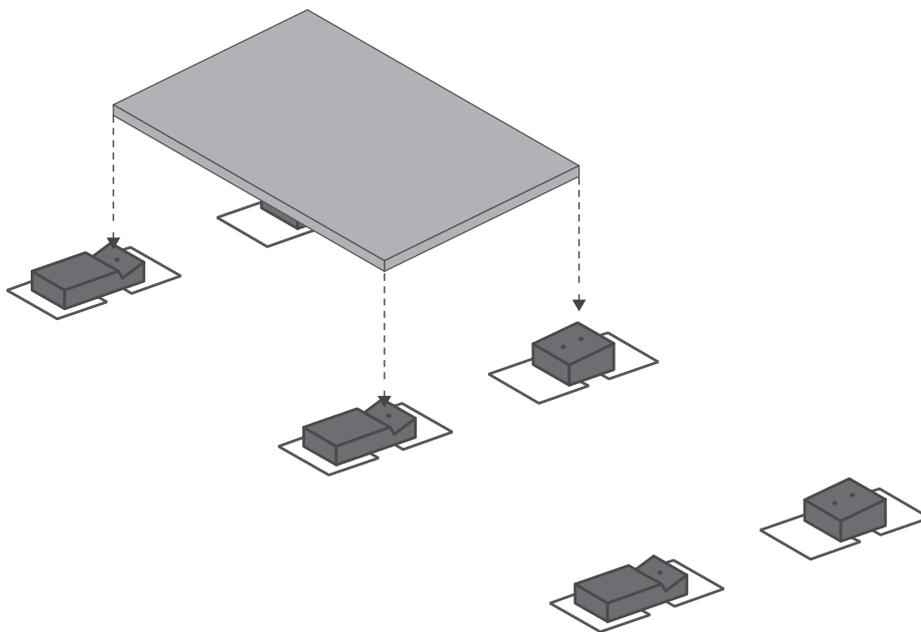
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 16- Assembly sequence of 5° double row connect system

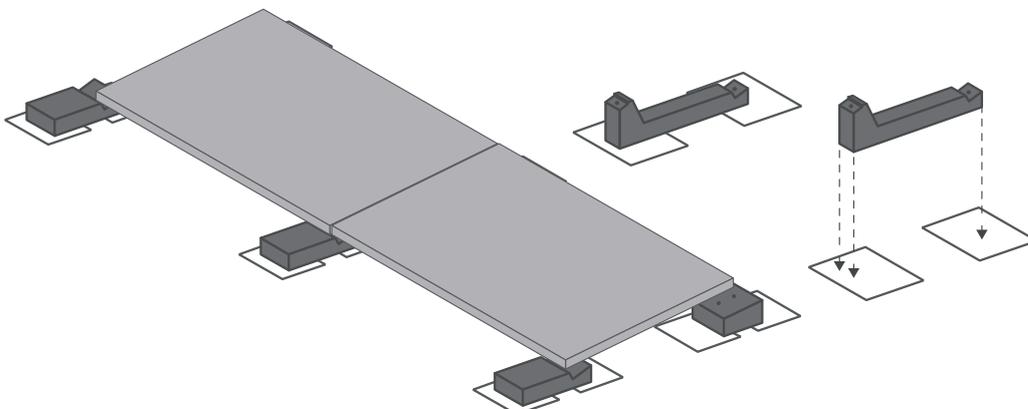
Phase 1: Laying of front and central (CRC) ballast on the sheaths



Phase 2: Laying of the panels on the first row with fixing clamps

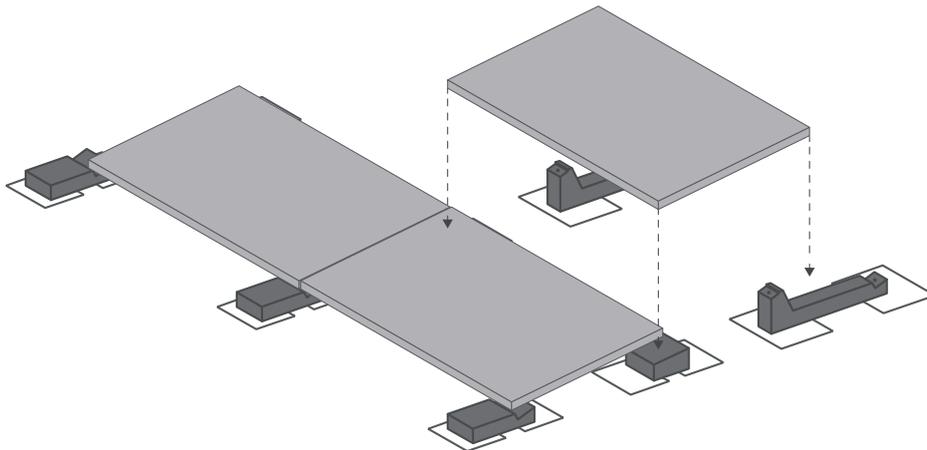


Phase 3: Laying of central ballast (CRC) on the sheaths

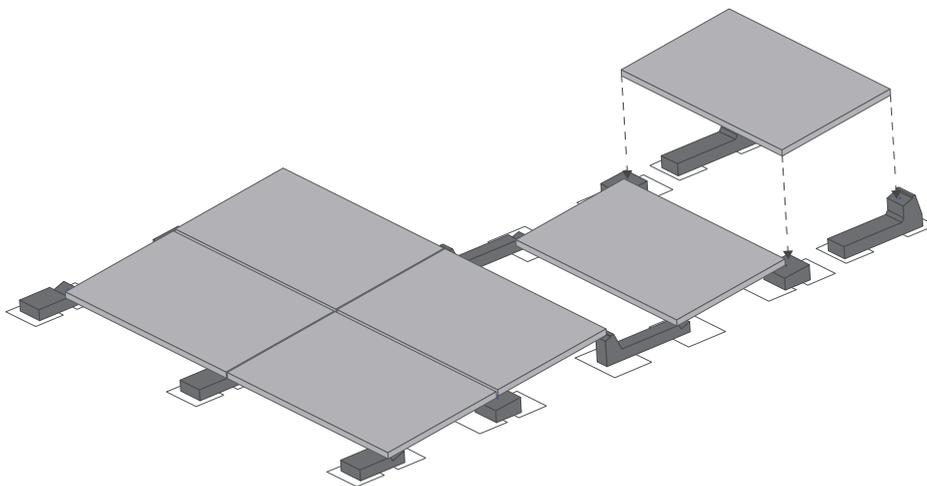


## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

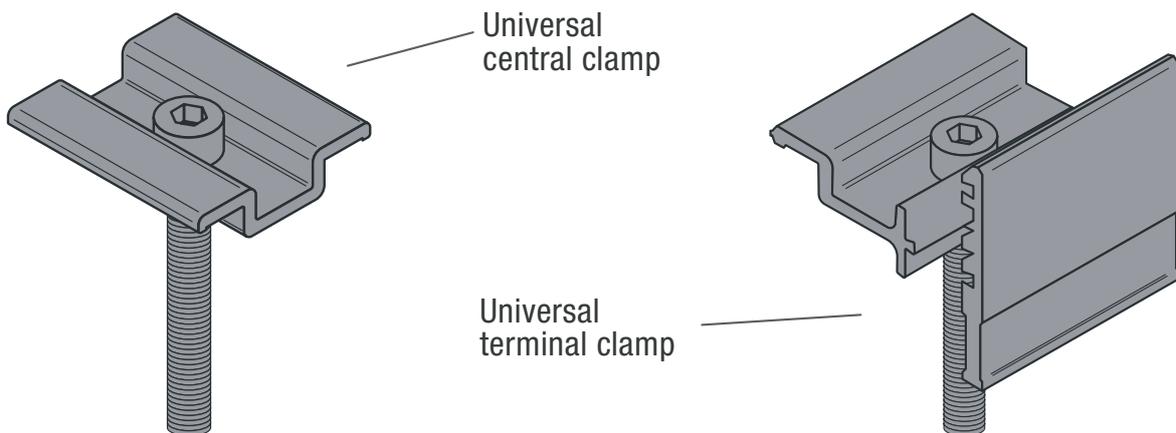
Phase 4: Laying of the panels on the second row with fixing clamps



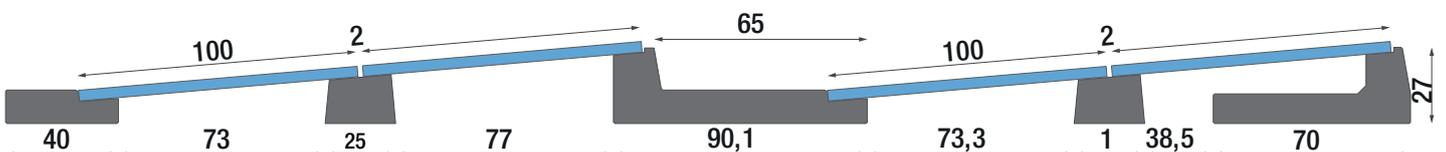
Phase 5: Laying of the central (CRC) and terminal ballast on the second block and the placing of respective panels



Phase 6: Preparation of the fixing clamps



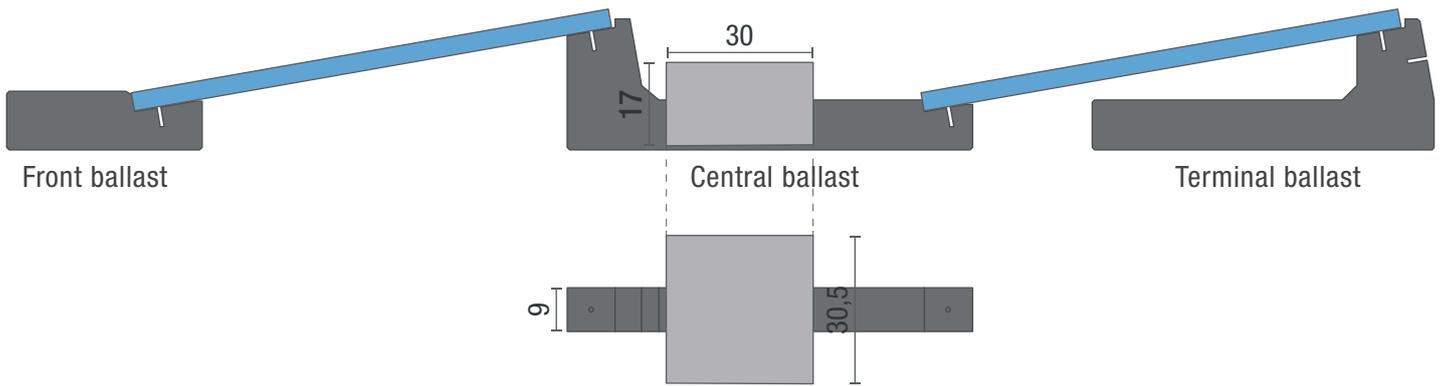
Side view of the system (dimensions in cm)



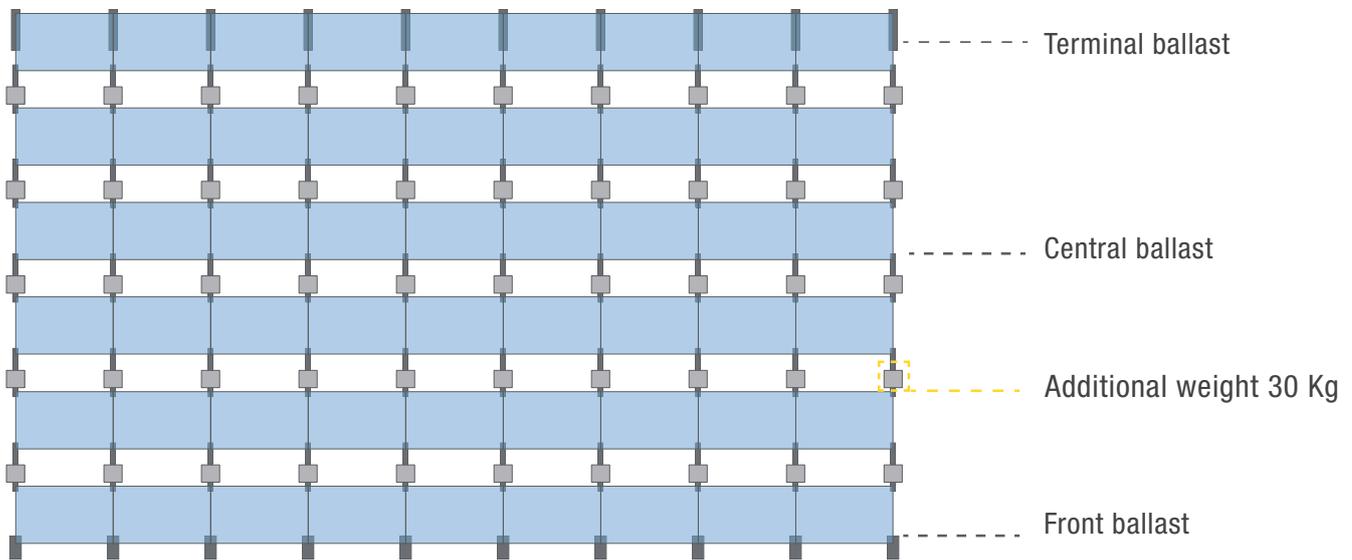
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 17- Additional weights on connect system

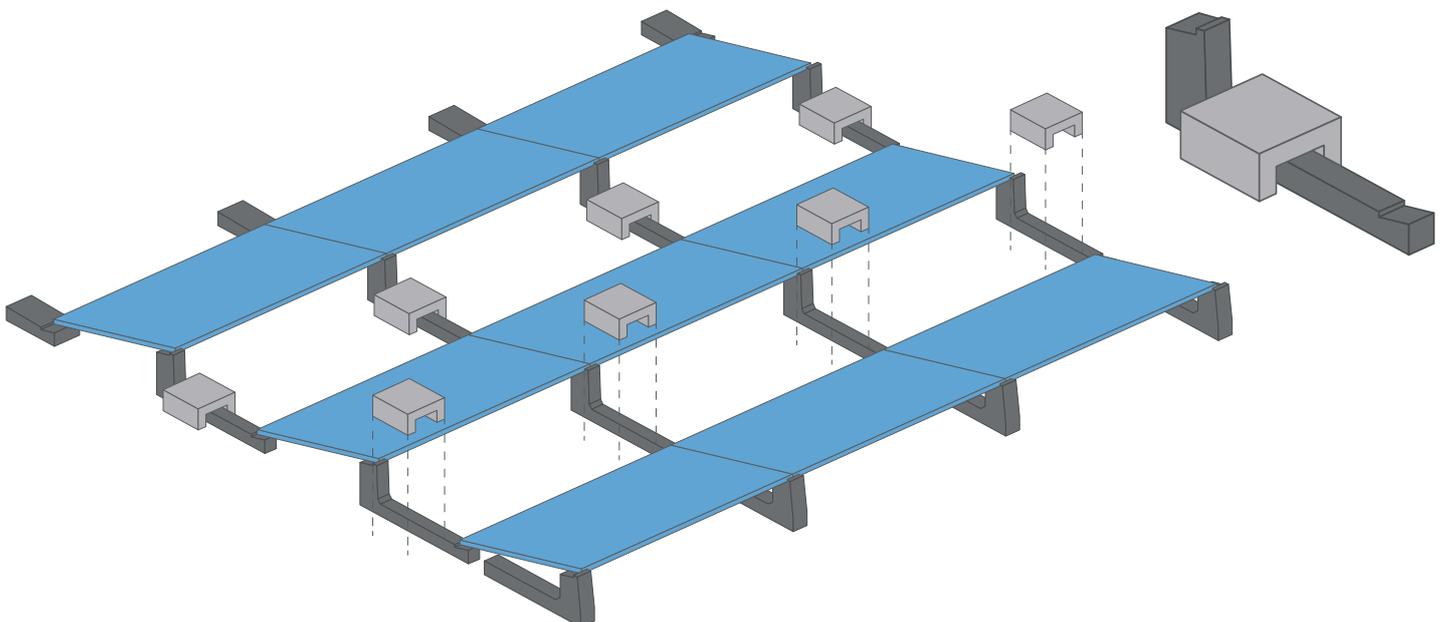
Side view



Top view



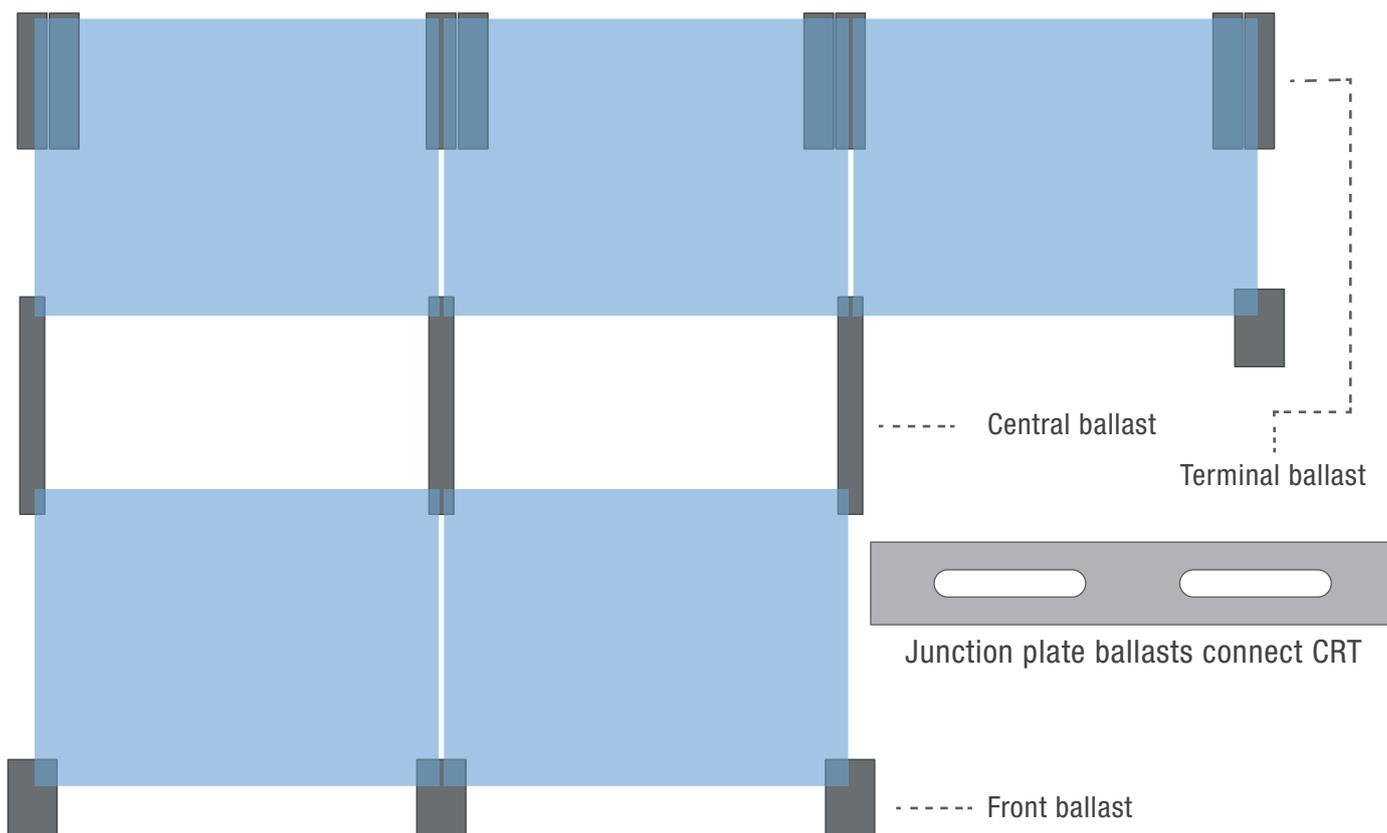
Interlocking additional weights on central ballast



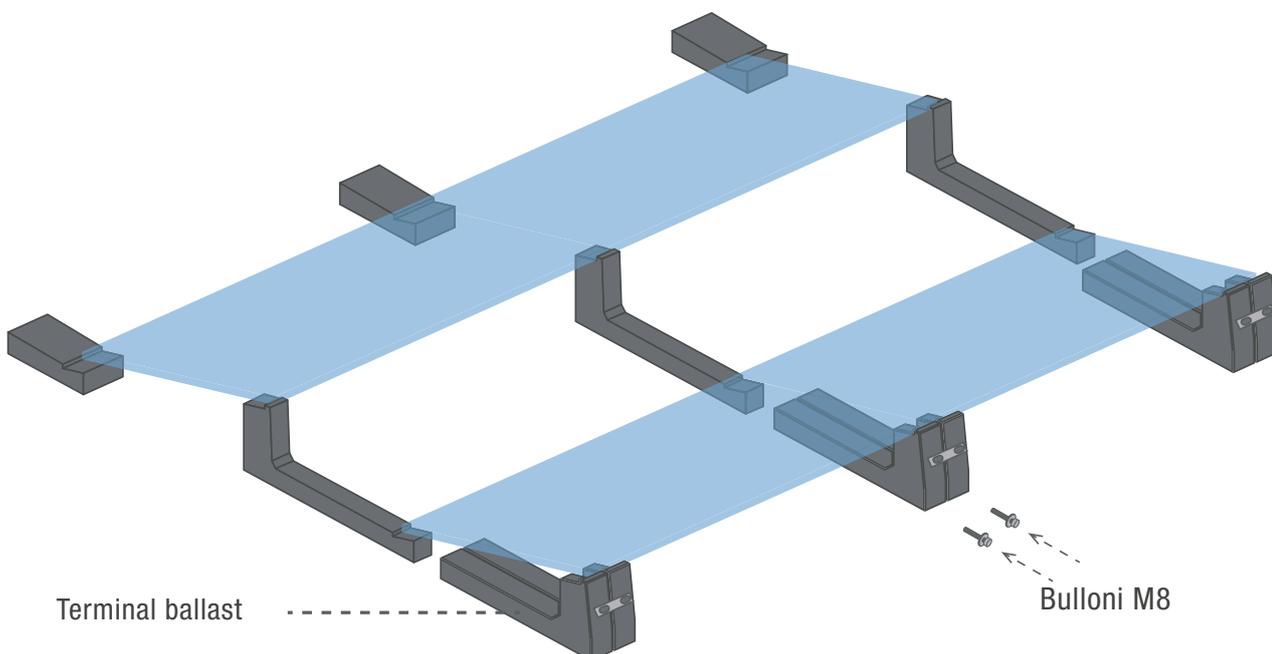
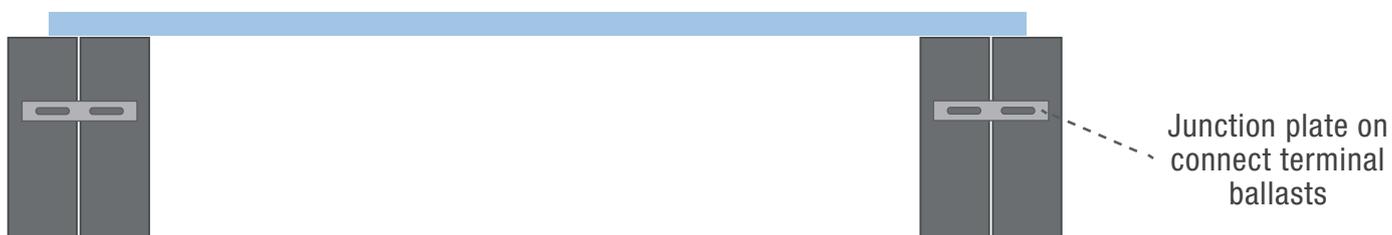
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 18- Montaggio raddoppio zavorra connect CRT

Top view



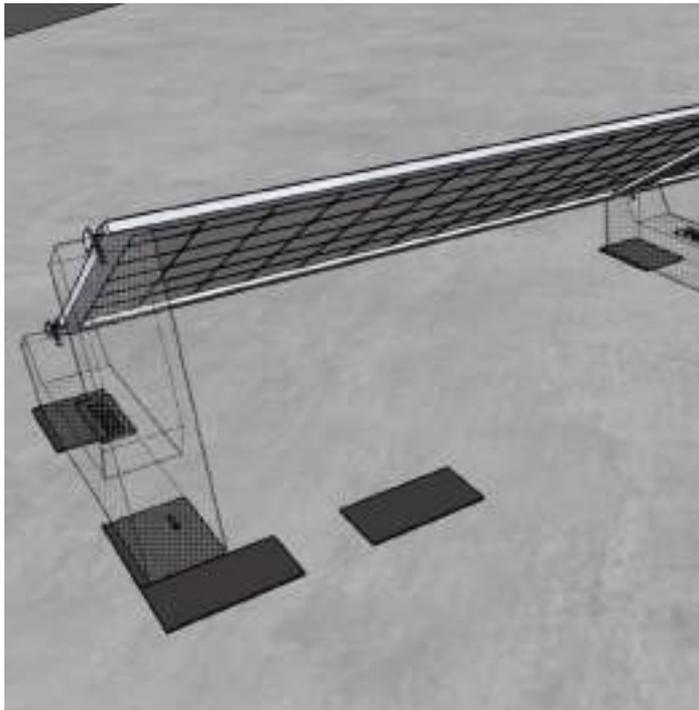
Back view



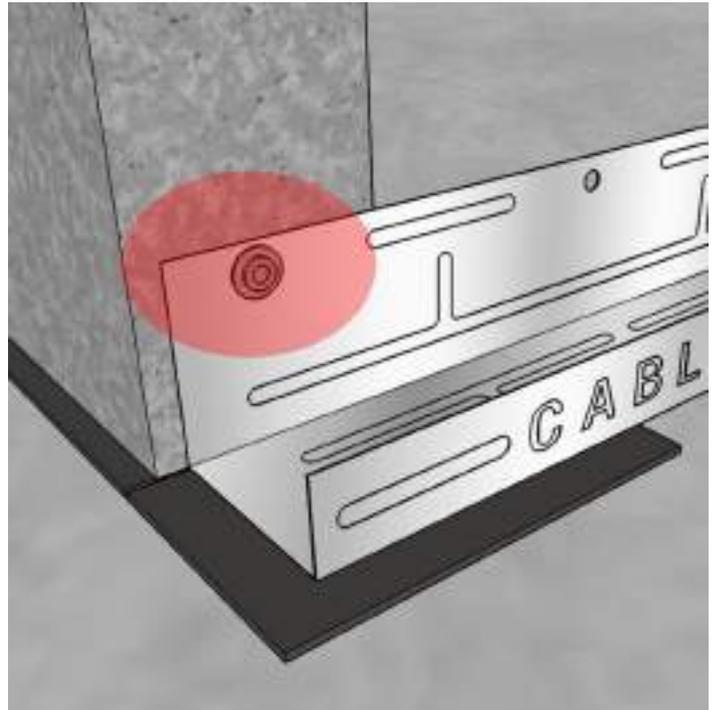
## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

### E 19- CABLOWIND SYSTEM

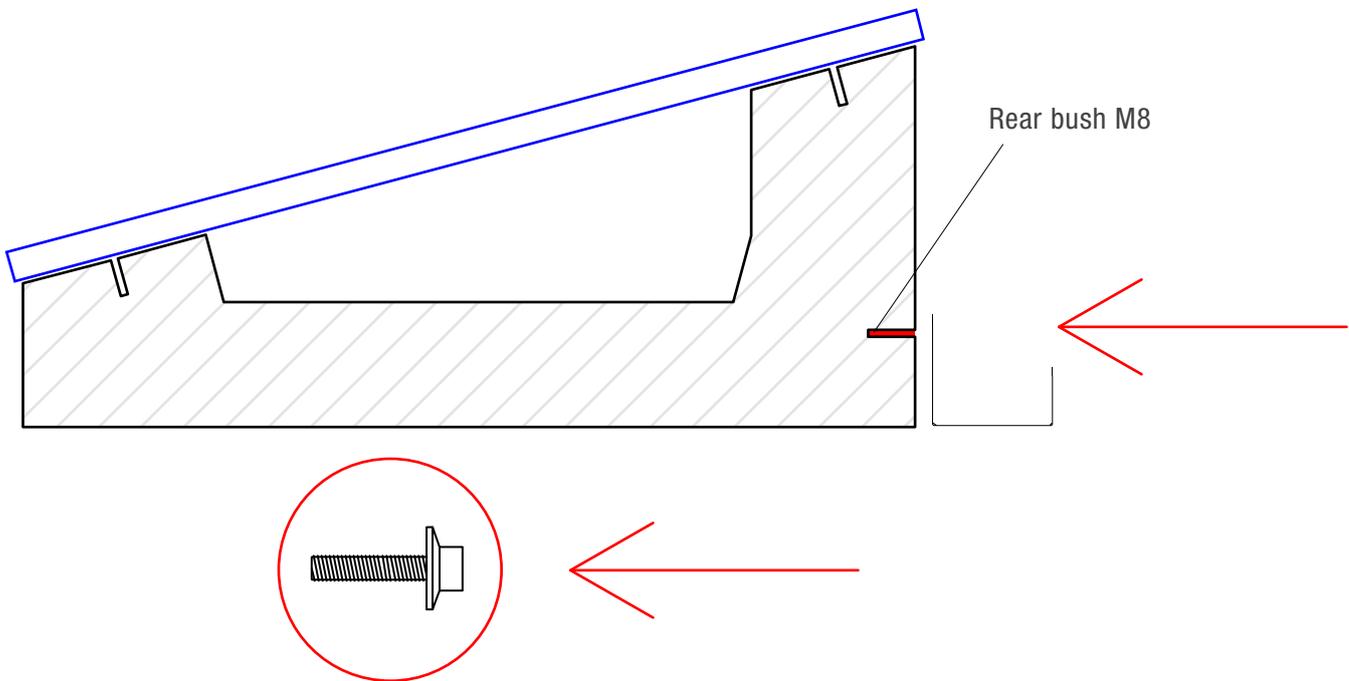
Phase 1: Positioning the sheaths for the cablowind collar



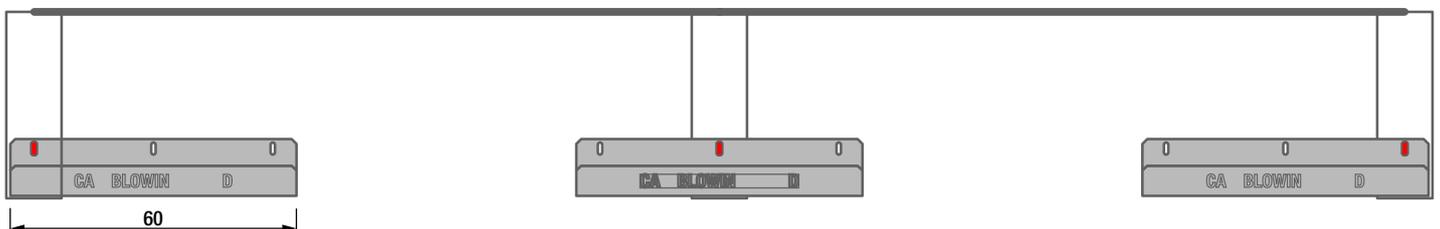
Phase 2: Fixing the collar in the rear bushing of the ballast



Fixing with M8 25x25 bolt and washer supplied use the suitable collarhole according to the position inside the row of panels

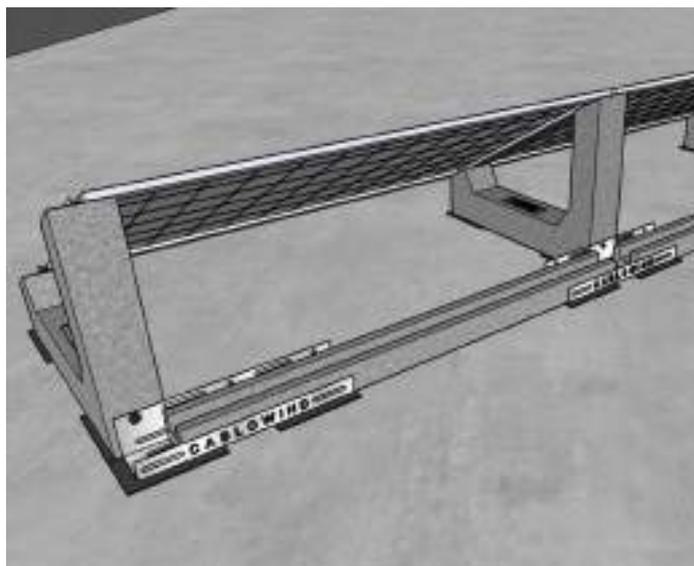
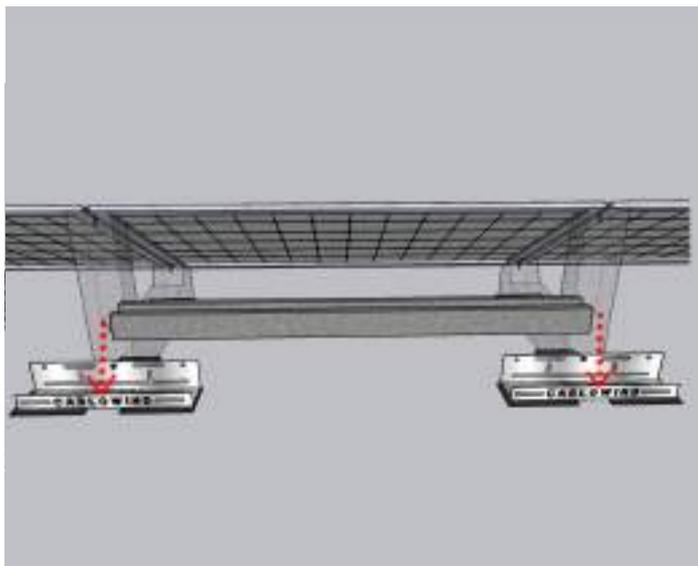


Side view

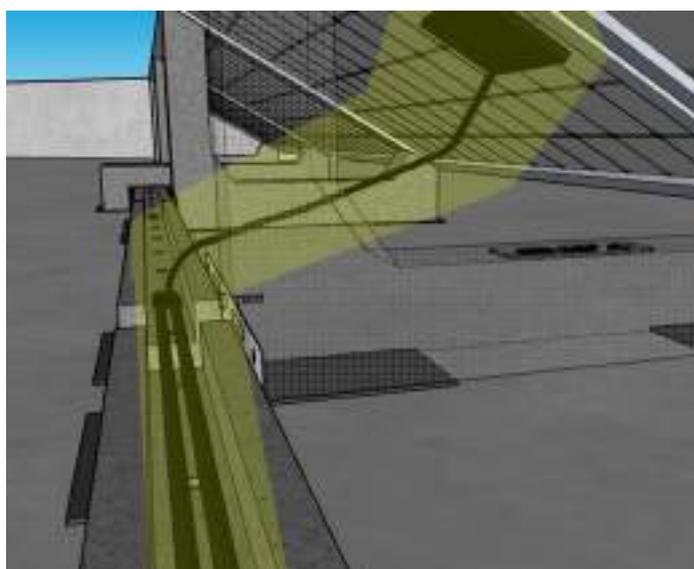
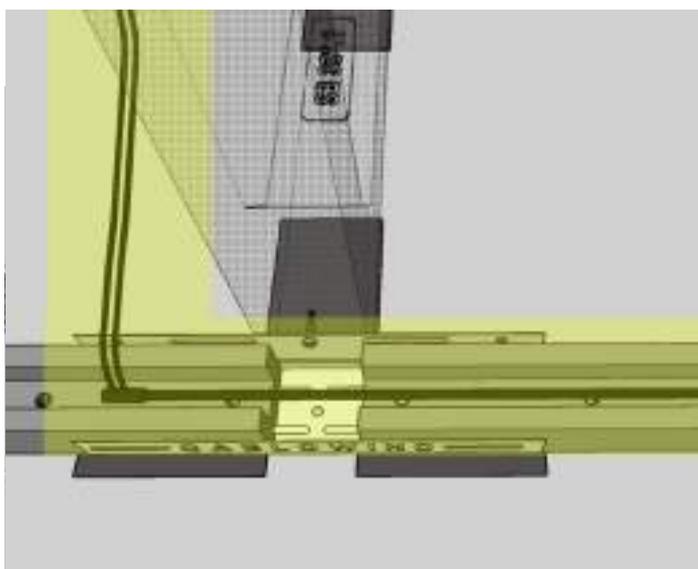


## E. ASSEMBLY SEQUENCE FOR SUN BALLAST SYSTEM AND ACCESSORIES

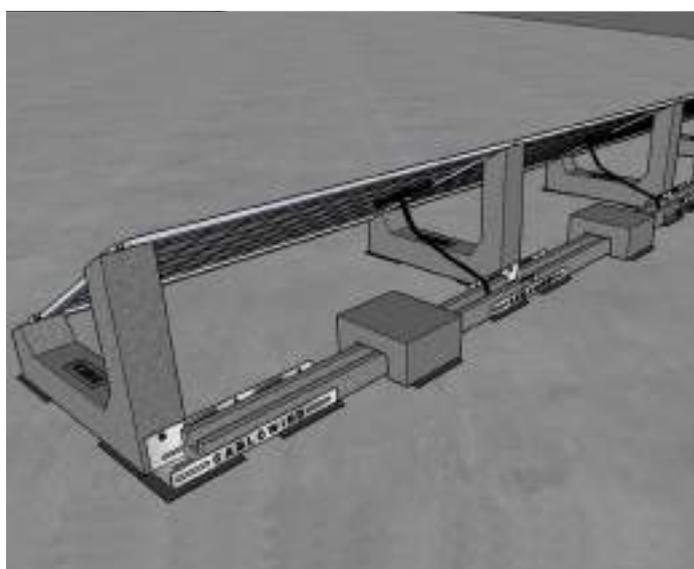
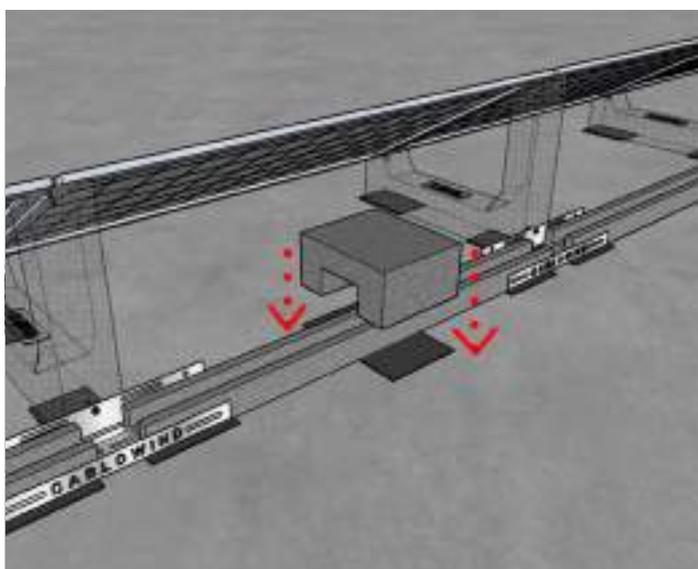
Phase 3: Positioning of the cablowind channel inside the collars and in the center of the panels



Phase 4: Positioning the cables inside the cablowind channel



Phase 5: Insertion of weights (if required by calculation) centrally in the channel



if provided, also position the special protective sheaths under the weights

The images are illustrative and may be subject to any non-substantial changes

## **F. MAINTENANCE**

- The Photovoltaic systems are subject to annual controls where, besides the verification of the electric systems, the general state of every component of the plant must be verified, particularly the structure of support and ballasting.
- Pay particular attention to the tightening of the brace that binds the modules to the ballasts and the bars to the ballasts.
- In phase of maintenance it is necessary to verify whether the rows have moved because of exceptional wind loads and/or wind loads which had not been foreseen and calculated in the first instance (during the installation).
- Should anomalies occur, the non-conforming parts must be fixed and/or replaced, preserving the safety measures on the plant.

## **G. RESPONSIBILITY**

**BASIC SRL** does not undertake any control activities on the installation of ballasts and panels, which shall follow the assembly instructions indicated in this manual, therefore it declines any responsibility for damage due to improper use of the Sun Ballast system.

### **CIVIL LIABILITY RELATED TO BUILDING**

We act in compliance with the current regulations into force.

### **INTRODUCTION**

The topic of the civil liabilities in the field of housebuilding is rather delicate and blurred, because of the countless technical norms which currently create considerable confusion. Innumerable are the duties to fulfil, it is unclear who shall take charge of the onerous duty of verifying and sanctioning though.

### **NON-CONTRACTUAL LIABILITY AS PER ART. 1669 ITALIAN CIVIL CODE**

Joint responsibility of contractor, of works manager and of client himself fundamental is the art. 1669 Italian C.C. “Deterioration and defects of immovable things” which establishes: “In the case of buildings or other immovable property intended by their nature to last for extended periods of time, if, in the course of ten years after completion, the work, due to soil or construction defects, deteriorates in whole or in part, or presents a clear danger of ruin or serious defects, the contractor shall be liable to the client and its assignees, provided that the report is made within one year from its identification. The client’s right shall lapse within one year of the report.”

Although at a first reading the aforementioned article entrusts the contractor with the exclusive responsibility, this is not the case: the orientation now consolidated by the Court of Cassation identifies in art. 1669 of the Civil Code a form of non-contractual liability which, therefore, goes beyond the limits of the contractual relationship between the parties and involves, in addition to the contractor, the designer, the works manager and the client himself who has directly managed the construction of the property.

Everyone can be called upon to jointly and severally compensate the damage that has occurred, when their respective conduct (actions or omissions), although independent of each other, have efficiently contributed to the creation of the harmful event. (Cass. N.20294/2004-Cass.n.12367/2002-Cass.n.972/2000). For further clarity, please remark: the supplier of materials used in the construction of the building cannot be included in the case of non-contractual liability indicated above, since its performance is limited to the delivery of the products without participating, therefore, in the construction of the building. (Cass. n. 13158/2002)

### **THE PRODUCER**

Responsibility and guarantees

The article 1° of the DPR n. 224 of 1988 enacts the general principle according to which “the producer is responsible of the damage caused by a defect of their product” towards all consumers: whether professionals, companies and authorized personnel, or private citizens

The producer is also required to:

- Specify the indications and limits of use of the products, providing any necessary warnings and legal obligations;
- To enter the data measured in quality control and within the limits of responsibility;
- Have third party companies carry out tests on the products, which recognize their functionality, and request ITC/ETA certification on systems and CE marking, where mandatory.

## H. WARRANTY

**Basic Srl** guarantees the functionality over time of Sun Ballast supports for photovoltaic panels on flat roofs, produced and marketed by the Company itself, for a period of 25 years from the date of purchase.

### SUBJECT OF THE WARRANTY

**Basic Srl** guarantees the resistance to corrosion derived by weather conditions (rain, ice, temperature fluctuations, salinity) of the supports, from the same produced and marketed, for photovoltaic panels on flat roof for a period of 25 years from the date of purchase.

### WARRANTY TERMS AND CONDITIONS

The Warranty will be operational only if all the following conditions are applied:

1. The system must be fully realized with the range of accessories supplied by Basic:
  - Central brace in aluminum
  - Terminal brace in aluminum
  - Screw for central and terminal brace INOX A2m
  - Sheath
  - Potential accessories
2. The ballast system shall be installed in a workmanlike manner and in compliance with the specific installation instructions of Basic Srl which are into force at the moment of purchasing and written in the technical specifications and in these assembly instructions.
3. If the ballasted system has been built using materials and components other than those specified in point "1", they must in any case have been marketed by Basic Srl. Any damage due to products not marketed by Basic Srl is excluded from this warranty.

This warranty is provided to the client with every order placed by the client. In the event of damage attributable to the terms stated in this warranty, and excluding any other obligation or reimbursement, Basic Srl:

- Shall provide a replacement product without additional charges. If the product is no longer in production, Basic Srl shall supply an equivalent product of equal value.
- Shall provide directly, through personnel chosen by the same and at its own expense, to restore the original functionality, possibly after an inspection by one of its representatives who will assess and determine the type of intervention required.

### EXCLUSIONS

This warranty does not include:

- damages caused by soil movements, settlement of the structure of the immovable property or movements of the structure
- damages caused by an incorrect use or maintenance of the structure, by activities, tampering or changes made by third parties
- accidental or voluntary damages, actions of war included
- damages caused by lightnings
- damages caused by natural disasters
- damages derived from a wrong installation
- damages derived from a wrong dimensioning

Any other obligation or indemnity to be paid by Basic Srl is expressly included, and Basic Srl shall not be held liable for any direct or indirect damage to goods, movable and immovable property, rights or activities of the person guaranteed to third parties.

## **H. WARRANTY**

### **PROCEDURE**

The request for activation of this warranty shall be made in writing and shall be received within 30 days from the date on which the damage becomes evident. The notice shall be accompanied by an evidence of purchase (copy of the invoice), shall state the details of the declared damages and shall be sent to: [info@sunballast.com](mailto:info@sunballast.com), to your marketing representative or on our website:

<http://www.sunballast.it/en/contacts>

In any case, the client's rights against its direct seller are not affected, in accordance with the applicable legislation on warranty in the sale of consumer goods art. 1490 of the Italian Civil Code. La presente garanzia è trasferibile a successivi proprietari senza obbligo di preavviso a Basic Srl.

This warranty is transferable to subsequent owners without prior notice from Basic Srl.

## **I. DECLARATION OF TECHNICAL CONFORMITY BASIC SRL**

Seat: Via della Costituzione 26-42028 Poviglio (RE)- Italia

Management System: UNI EN ISO 9001:2015 - N°CERTIFICATO: 50 100 3413

Denomination: Ballasts in precast unreinforced concrete

(Inside there is an iron rod to increase mechanical elasticity)

Article: Sun Ballast (Patented System)

Technical characteristics

- Exposure class: XC4 unless otherwise specified
- Strength class: C32/40
- Minimum cement content: 340 kg/m<sup>2</sup>
- Class of fire resistance C A1 (as established by the Decree of the Italian Ministry of the Interior on the 14th January 1985)
- Maximum depth of water (H2O) penetration under the pressure 500 kPa: 15 mm
- Medium depth of water (H2O) penetration under the pressure 500 kPa: 10 mm
- Determination of the tensile/pull-out strength of the buckle M8 embedded in the concrete element through direct tensile test on the bolt M8 which is screwed in the buckle
- Minimum tensile strength of the test at 15 KN (1530 kg) without any slipping of the buckle inserted in the Sun Ballast ballast
- Weight tolerance +/-5%

**YEAR OF CONSTRUCTION 2020**

BASIC SRL DECLARES THAT

The production complies with all instructions and procedure of the quality management system certified according to the UNI EN ISO 9001:2015. Any modification to the product covered by this declaration made without the authorisation of the manufacturer shall render this declaration of technical conformity null and void.

Poviglio (RE) Italia, 07/01/2020

The legal representative

**Basic Srl**  
Via della Costituzione, 26 -42028 Poviglio  
Tel/Fax 0522/960926  
P.Iva 02557770357 REA: 292573  
info@sunballast.it  
www.sunballast.it

## J. REPORT OF INSTALLATION

### Installer's personal data:

Check	Positive / Negative	Notes
Check the condition of the roof, before positioning the system, to ensure its suitability for installation and the absence of existing defects (tears, joints, detached sheath and any obstacles not described in the design phase).		
Check that the products installed correspond as indicated on the design, report or order confirmation.		
Check that the height of the building, the railing, the distance from the roof edge, the distance between the rows, correspond to those indicated in the system layout.		
In the case of changes with respect to the project, check the need for additional accessories and related installation and, if necessary, update the project.		
Check that potential accessories are properly placed in order to improve the resistance to wind loads.		
Check that all components are properly locked.		
Check that the worksite is clean and no component or packaging is left onsite that could damage the work surface.		
Pictures of the installed plant.		

Poviglio (RE) Italia, 07/01/2020

The legal representative

## K. SYSTEM REGISTER

Personal data of the installer:

### Data relating to the installing company

Company name:	
Street:	
CAP:	
Location:	
VAT number:	

### Plant data

Customer:			
Place of installation:			
Plant power:			
Ballast model:			
Use of accessories:	Additional weights, reinforcement bars, windshield carter		
Module size:			
Presence and height of perimeter parapet:			
North:	South:	East:	West:
Distance from the parapet			
Residual bearing capacity of the slab			
Roof inclination:			
Building height:			

Locality of the plant: 1,2,3,4,5,6,7,8,9 Vb0 m/s reference wind speed: 25, 26, 27, 28, 29, 30, 31

### Terrain roughness class

- CLASSE A

Urban areas where at least 15% of the surface is covered with buildings whose average height exceeds 15 m

- CLASSE B

Wooded, industrial, suburban, and urban areas (not in class A)

- CLASSE C

Areas with distributed barriers (trees, houses, walls, fences...): areas whose roughness is not attributable to A, B, D classes

- CLASSE D

Areas without barriers (open land, airports, agricultural areas, pastures, sandy areas, wetlands, surfaces covered in snow or ice, lakes...)



## NOTES

A large grid of horizontal dashed lines for taking notes, consisting of 20 columns and 30 rows of lines.

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**Supporting solar innovation**  
**Patented systems - Made in Italy**

**FOLLOW US ON:**    

**For info and quotes:**

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 [www.sunballast.it/en](http://www.sunballast.it/en)

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