

# Installation manual ValkTriple



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## Pay attention

- This manual is not project specific.
- This manual is not legally binding.
- No rights may be derived from this installation manual.
- See **datasheet ValkCableCare** for cable management.
- The system is placed in the middle zone of the roof.





## Disclaimer

This installation manual composed with the greatest possible care and contains specific information for correct and safe installation of the solar mounting system, including installation drawings and ballast tables, calculated according to the Eurocode regulations. The standard values used for input of these calculations, always need to be checked in advance by the installer for correctness. In case values are different, a project case specific calculation needs to be made. Please contact Van der Valk Solar Systems in this situation.

At all times all currently applicable structural, safety and building regulations must be observed prior to installation of the solar mounting system. The building in question will be subject to a load as a result of the solar mounting system installed/mounted. Solar mounting systems installed on roofs will be exposed to wind and snow loads. Therefore, you are at all times responsible to obtain and use a design calculation to establish whether or not the building will be able to withstand the (extra) load at all times. Where necessary, modifications need to be made by you. Van der Valk will not accept any form of liability upon you not having obtained and used such a required design calculation.

Mounting systems for PV-panels placed on flat roofs should either be mechanically attached to the roof or need to be supported by ballast, to make sure that the solar mounting system is unable to be lifted, tipped over or slide. The required ballast weight per system shown in the tables in this manual ensures that the mounting system can be installed and used safely. In case the inclination of the roofs is 5 degrees or more, the PV-mounting system must always be mechanically fixed to the construction of the roof.

The calculations do not take into account obstacles in the near surrounding such as, for example, high buildings, cliffs and mountains. Restrictions also apply for the position of the solar mounting system on a roof. The solar panels must be installed at a certain distance from the edge of the roof: the middle zone.

The standard warranty is 10 years, which can be extended under certain conditions. The guarantee provided is subject to the guarantee conditions stated in the general terms and conditions stipulated by Van der Valk Solar Systems B.V.. Our terms and conditions shall apply to all our products at all times and can be found on our website:

[www.valksolarsystems.com](http://www.valksolarsystems.com)

Van der Valk Solar Systems B.V. does not accept any liability for any direct and/or indirect consequences of any act (or omission) ensuing from the information in or failure to observe the instructions provided in this installation manual. The use of the installation manual will at all times be subject to Dutch law.

Van der Valk Solar Systems holds the right to amend this document without further notice.

The ValkTriple mounting system is a product of:

Van der Valk Solar Systems BV

Netherlands Chamber of Commerce: 27355116

[www.valksolarsystems.com](http://www.valksolarsystems.com)

## Required ballast | The Netherlands

### General

The ValkTriple® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In **three steps** you can easily calculate the required ballast;

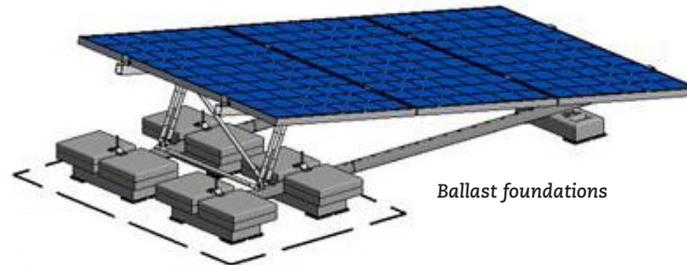
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

Note 1: The extra ballast must be equally divided over the ballast foundations.

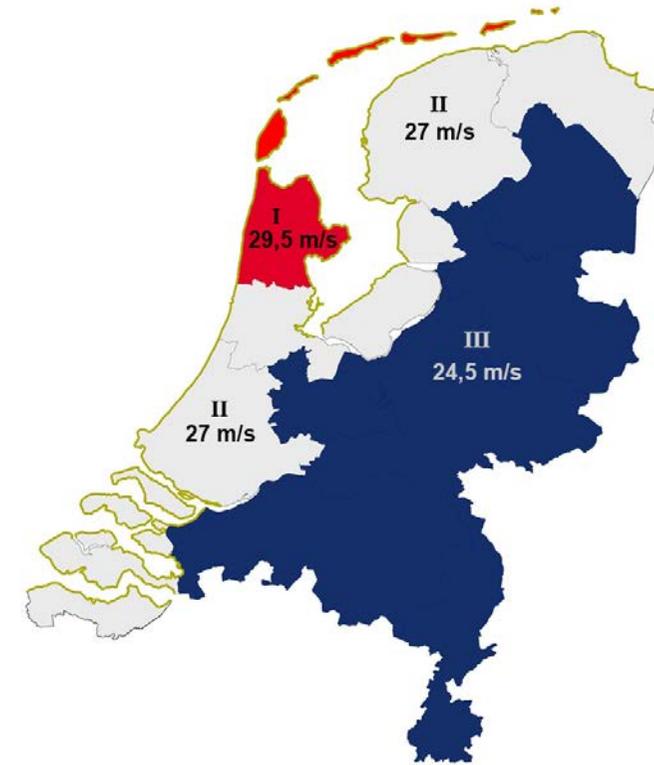
Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

### Environmental factors

Position	Middle zone roof
Terrain category	Built environment
Roofing materials	Bitumen



### Windmap The Netherlands



Panel: maximum dimensions 1800x1100 mm (21 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
I (29,5 m/s)	213,0	213,0	264,0	X	X	kg
	24,0	24,0	29,5	X	X	tiles
II (27 m/s)	142,0	142,0	184,0	235,0	276,0	kg
	16,0	16,0	20,5	26,5	31,0	tiles
III (24,5 m/s)	78,0	78,0	112,0	154,0	187,0	kg
	9,0	9,0	12,5	17,5	21,0	tiles

Panel: maximum dimensions 2100x1100 mm (24 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
I (29,5 m/s)	273,0	273,0	X	X	X	kg
	30,5	30,5	X	X	X	tiles
II (27 m/s)	190,0	190,0	240,0	X	X	kg
	21,5	21,5	27,0	X	X	tiles
III (24,5 m/s)	115,0	115,0	156,0	204,0	242,0	kg
	13,0	13,0	17,5	23,0	27,0	tiles

X = the required ballast is higher than will fit under the system. The system must be mechanically attached to the roof. Please contact Van der Valk Solar Systems.

\* If you use tiles of different sizes and thus another weight, you need to adjust the number of tiles to get the right weight.

# Required ballast | Belgium

## General

The ValkTriple® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In **three steps** you can easily calculate the required ballast;

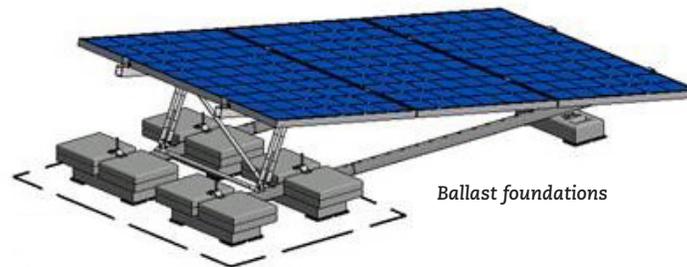
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

Note 1: The extra ballast must be equally divided over the ballast foundations.

Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

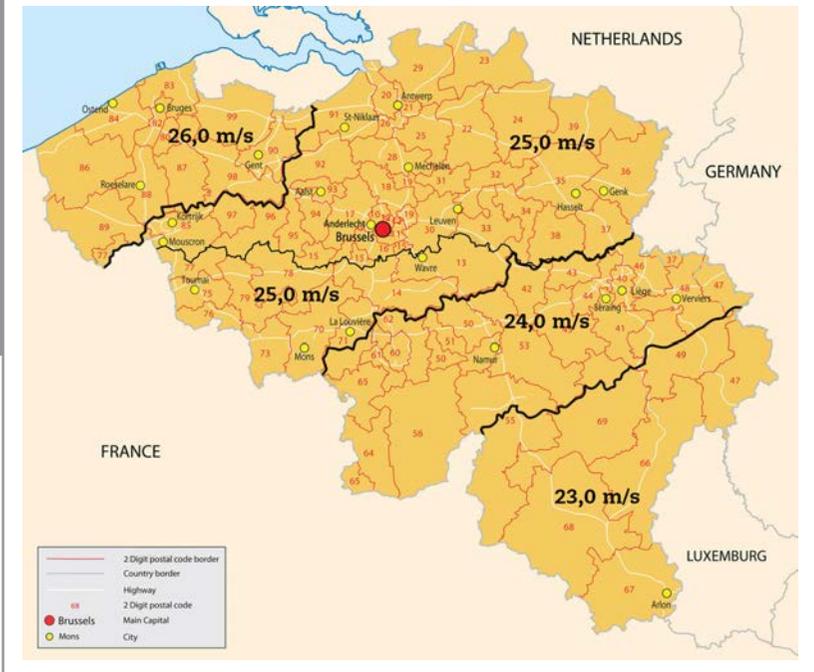
## Environmental factors

Position	Middle zone roof
Terrain category	III (villages, suburban terrain, permanent forest)
Roofing materials	Bitumen



Ballast foundations

## Windmap Belgium



Panel: maximum dimensions 1800x1100 mm (21 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
23 m/s	11,0	45,0	71,0	103,0	128,0	kg
	1,5	5,0	8,0	11,5	14,5	tiles
24 m/s	30,0	67,0	96,0	130,0	158,0	kg
	3,5	7,5	11,0	14,5	18,0	tiles
25 m/s	50,0	90,0	121,0	158,0	188,0	kg
	6,0	10,0	13,5	18,0	21,0	tiles
26 m/s	70,0	113,0	147,0	188,0	220,0	kg
	8,0	13,0	16,5	21,0	24,5	tiles

Panel: maximum dimensions 2100x1100 mm (24 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
23 m/s	38,0	77,0	108,0	145,0	174,0	kg
	4,5	9,0	12,0	16,5	19,5	tiles
24 m/s	60,0	103,0	136,0	176,0	209,0	kg
	7,0	11,5	15,5	20,0	23,5	tiles
25 m/s	83,0	129,0	166,0	209,0	244,0	kg
	9,5	14,5	18,5	23,5	27,5	tiles
26 m/s	106,0	157,0	196,0	244,0	281,0	kg
	12,0	17,5	22,0	27,5	31,5	tiles

X = the required ballast is higher than will fit under the system. The system must be mechanically attached to the roof. Please contact Van der Valk Solar Systems.

\* If you use tiles of different sizes and thus another weight, you need to adjust the number of tiles to get the right weight.

# Required ballast | Germany

## General

The ValkTriple® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In **three steps** you can easily calculate the required ballast;

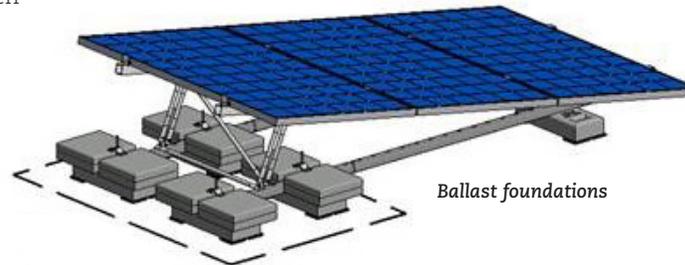
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

Note 1: The extra ballast must be equally divided over the ballast foundations.

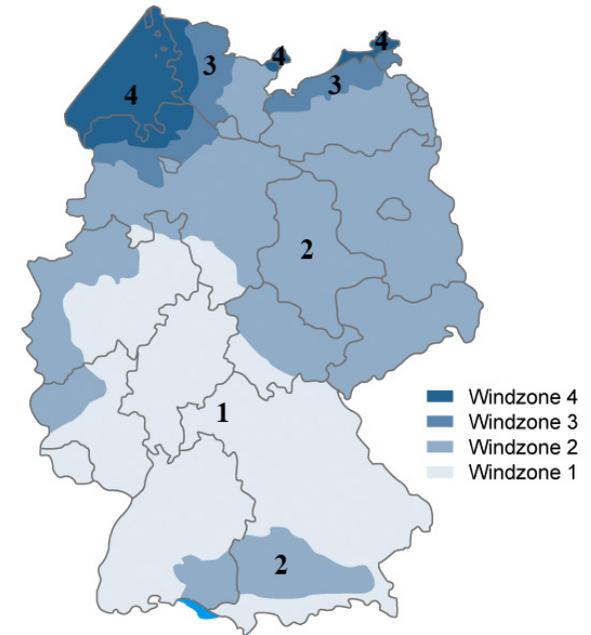
Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

## Environmental factors

Position Middle zone roof  
 Terrain category IV (city)  
 Height above sea level 350 m  
**Exclusief North German Lowland**  
 Roof materials Bitumen



Windmap Germany



Panel: maximum dimensions 1800x1100 mm (21 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
1 (22,5 m/s)	15,0	15,0	15,0	15,0	15,0	kg
	2,0	2,0	2,0	2,0	2,0	tiles
2 (25 m/s)	65,0	65,0	65,0	65,0	65,0	kg
	7,5	7,5	7,5	7,5	7,5	tiles
3 (27,5 m/s)	121,0	121,0	121,0	121,0	121,0	kg
	13,5	13,5	13,5	13,5	13,5	tiles
4 (30 m/s)	183,0	183,0	183,0	183,0	183,0	kg
	20,5	20,5	20,5	20,5	20,5	tiles

Panel: maximum dimensions 2100x1100 mm (24 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
1 (22,5 m/s)	42,0	42,0	42,0	42,0	42,0	kg
	5,0	5,0	5,0	5,0	5,0	tiles
2 (25 m/s)	101,0	101,0	101,0	101,0	101,0	kg
	11,5	11,5	11,5	11,5	11,5	tiles
3 (27,5 m/s)	166,0	166,0	166,0	166,0	166,0	kg
	18,5	18,5	18,5	18,5	18,5	tiles
4 (30 m/s)	238,0	238,0	238,0	238,0	238,0	kg
	26,5	26,5	26,5	26,5	26,5	tiles

X = the required ballast is higher than will fit under the system. The system must be mechanically attached to the roof. Please contact Van der Valk Solar Systems.

\* If you use tiles of different sizes and thus another weight, you need to adjust the number of tiles to get the right weight.

# Required ballast | United Kingdom

## General

The ValkTriple® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In **three steps** you can easily calculate the required ballast;

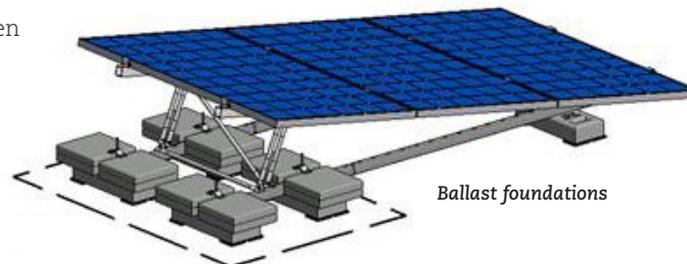
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

Note 1: The extra ballast must be equally divided over the ballast foundations.

Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

## Environmental factors

Position	Middle zone roof
Terrain category	Builted environment
Height above sea level	50 m
Distance to coast line	5 km
Distance to city border	5 km
Roof materials	Bitumen



Panel: maximum dimensions 1800x1100 mm (21 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
22 m/s	81,0	138,0	161,0	231,0	231,0	kg
	9,0	15,5	18,0	26,0	26,0	tiles
23 m/s	107,0	170,0	195,0	271,0	271,0	kg
	12,0	19,0	22,0	30,5	30,5	tiles
24 m/s	134,0	203,0	230,0	X	X	kg
	15,0	23,0	26,0	X	X	tiles
25 m/s	163,0	237,0	267,0	X	X	kg
	18,5	26,5	30,0	X	X	tiles
26 m/s	193,0	273,0	X	X	X	kg
	21,5	30,5	X	X	X	tiles

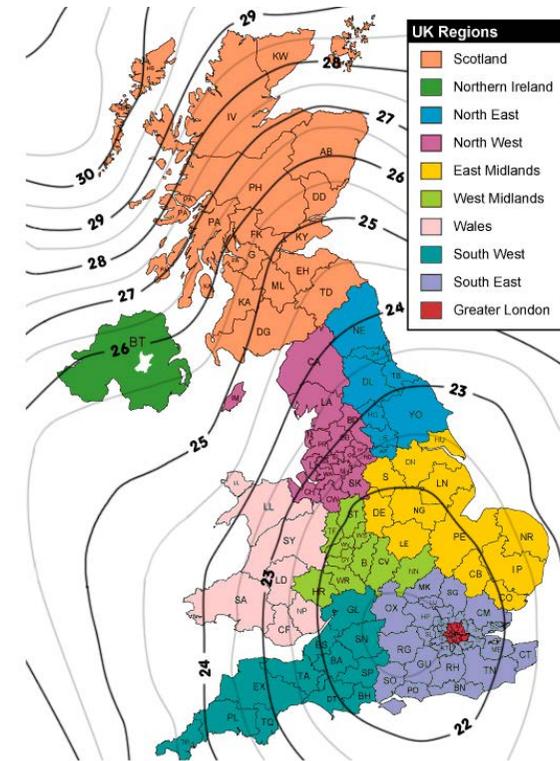
Panel: maximum dimensions 2100x1100 mm (24 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
22 m/s	119,0	186,0	212,0	X	X	kg
	13,5	21,0	24,0	X	X	tiles
23 m/s	149,0	222,0	252,0	X	X	kg
	17,0	25,0	28,0	X	X	tiles
24 m/s	181,0	261,0	X	X	X	kg
	20,5	29,0	X	X	X	tiles
25 m/s	215,0	X	X	X	X	kg
	24,0	X	X	X	X	tiles
26 m/s	249,0	X	X	X	X	kg
	28,0	X	X	X	X	tiles

X = the required ballast is higher than will fit under the system. The system must be mechanically attached to the roof. Please contact Van der Valk Solar Systems.

\* If you use tiles of different sizes and thus another weight, you need to adjust the number of tiles to get the right weight.

## Windmap United Kingdom



# Required ballast | Ireland

## General

The ValkTriple® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In **three steps** you can easily calculate the required ballast;

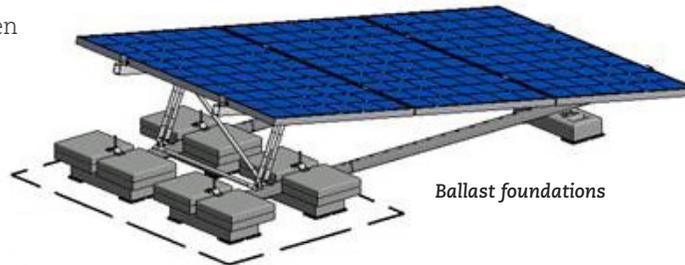
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

Note 1: The extra ballast must be equally divided over the ballast foundations.

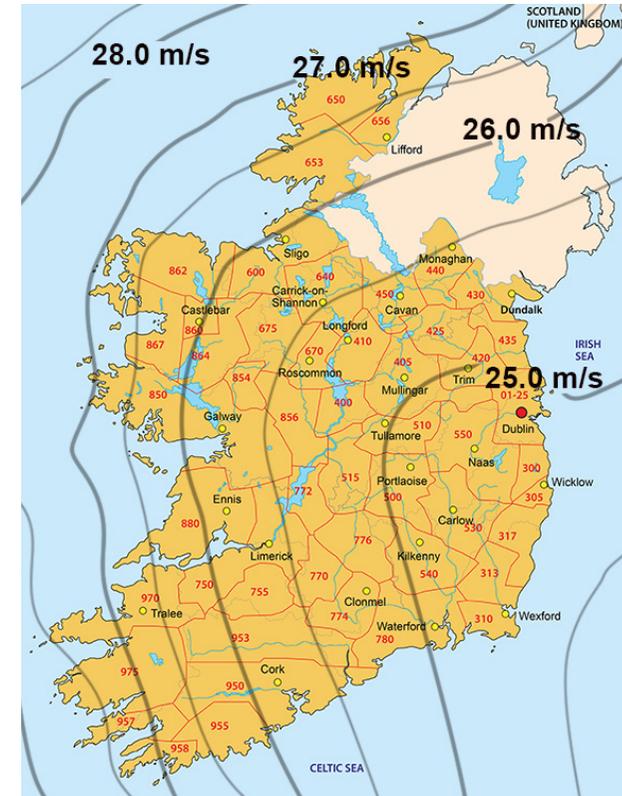
Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

## Environmental factors

Position	Middle zone roof
Terrain category	Built environment
Height above sea level	50 m
Distance to coast line	5 km
Distance to city border	5 km
Roof materials	Bitumen



## Windmap Ireland



Panel: maximum dimensions 1800x1100 mm (21 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
25 m/s	163,0	237,0	267,0	X	X	kg
	18,5	26,5	30,0	X	X	tiles
26 m/s	193,0	273,0	X	X	X	kg
	21,5	30,5	X	X	X	tiles
27 m/s	224,0	X	X	X	X	kg
	25,0	X	X	X	X	tiles
28 m/s	256,0	X	X	X	X	kg
	28,5	X	X	X	X	tiles

Panel: maximum dimensions 2100x1100 mm (24 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
25 m/s	215,0	X	X	X	X	kg
	24,0	X	X	X	X	tiles
26 m/s	249,0	X	X	X	X	kg
	28,0	X	X	X	X	tiles
27 m/s	285,0	X	X	X	X	kg
	32,0	X	X	X	X	tiles
28 m/s	X	X	X	X	X	kg
	X	X	X	X	X	tiles

X = the required ballast is higher than will fit under the system. The system must be mechanically attached to the roof. Please contact Van der Valk Solar Systems.

\* If you use tiles of different sizes and thus another weight, you need to adjust the number of tiles to get the right weight.

## Required ballast | Norway

### General

The ValkTriple® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In **three steps** you can easily calculate the required ballast;

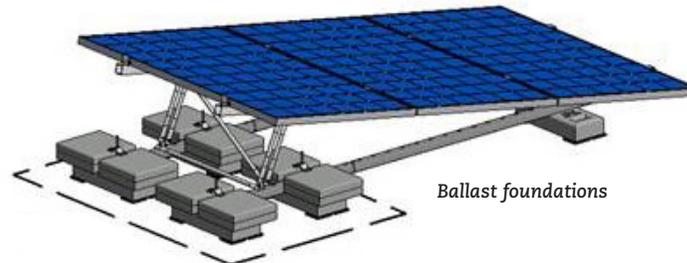
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

Note 1: The extra ballast must be equally divided over the ballast foundations.

Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

### Environmental factors

Position	Middle zone roof
Terrain category	III (villages, suburban terrain, permanent forest)
Height above sea level	175 m
Roofing materials	Bitumen



Panel: maximum dimensions 1800x1100 mm (21 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
22 m/s	55,0	55,0	67,0	98,0	122,0	kg
	6,5	6,5	7,5	11,0	14,0	tiles
25 m/s	129,0	129,0	145,0	185,0	217,0	kg
	14,5	14,5	16,5	21,0	24,5	tiles
27 m/s	184,0	184,0	203,0	249,0	286,0	kg
	20,5	20,5	23,0	28,0	32,0	tiles
29 m/s	244,0	244,0	265,0	X	X	kg
	27,5	27,5	29,5	X	X	tiles
31 m/s	X	X	X	X	X	kg
	X	X	X	X	X	tiles

Panel: maximum dimensions 2100x1100 mm (24 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
22 m/s	88,0	88,0	103,0	138,0	167,0	kg
	10,0	10,0	11,5	15,5	19,0	tiles
25 m/s	175,0	175,0	194,0	240,0	277,0	kg
	19,5	19,5	22,0	27,0	31,0	tiles
27 m/s	240,0	240,0	261,0	X	X	kg
	27,0	27,0	29,0	X	X	tiles
29 m/s	X	X	X	X	X	kg
	X	X	X	X	X	tiles
31 m/s	X	X	X	X	X	kg
	X	X	X	X	X	tiles

X = the required ballast is higher than will fit under the system. The system must be mechanically attached to the roof. Please contact Van der Valk Solar Systems.

\* If you use tiles of different sizes and thus another weight, you need to adjust the number of tiles to get the right weight.

### Windmap Norway



**For determining the wind area see next page.**



## Required ballast | Sweden

### General

The ValkTriple® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In **three steps** you can easily calculate the required ballast;

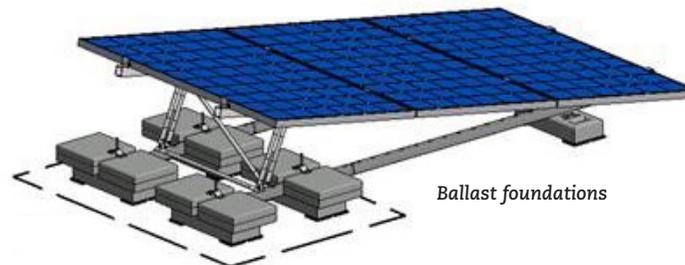
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

Note 1: The extra ballast must be equally divided over the ballast foundations.

Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

### Environmental factors

Position	Middle zone roof
Terrain category	III (villages, suburban terrain, permanent forest)
Roofing materials	Bitumen



Panel: maximum dimensions 1800x1100 mm (21 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
22 m/s	0,0	0,0	22,0	49,0	70,0	kg
	0,0	0,0	2,5	5,5	8,0	tiles
23 m/s	0,0	19,0	43,0	72,0	95,0	kg
	0,0	2,5	5,0	8,0	11,0	tiles
24 m/s	5,0	38,0	65,0	96,0	121,0	kg
	1,0	4,5	7,5	11,0	13,5	tiles
25 m/s	23,0	59,0	87,0	121,0	149,0	kg
	3,0	7,0	10,0	13,5	17,0	tiles
26 m/s	41,0	80,0	111,0	148,0	177,0	kg
	5,0	9,0	12,5	16,5	20,0	tiles

### Windmap Sweden



Panel: maximum dimensions 2100x1100 mm (24 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
22 m/s	0,0	25,0	51,0	81,0	106,0	kg
	0,0	3,0	6,0	9,0	12,0	tiles
23 m/s	11,0	47,0	75,0	108,0	135,0	kg
	1,5	5,5	8,5	12,0	15,0	tiles
24 m/s	30,0	69,0	100,0	137,0	166,0	kg
	3,5	8,0	11,5	15,5	18,5	tiles
25 m/s	51,0	93,0	127,0	166,0	198,0	kg
	6,0	10,5	14,5	18,5	22,0	tiles
26 m/s	72,0	118,0	154,0	197,0	232,0	kg
	8,0	13,5	17,5	22,0	26,0	tiles

X = the required ballast is higher than will fit under the system. The system must be mechanically attached to the roof. Please contact Van der Valk Solar Systems.

\* If you use tiles of different sizes and thus another weight, you need to adjust the number of tiles to get the right weight.

# Required ballast | Finland

## General

The ValkTriple® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In **three steps** you can easily calculate the required ballast;

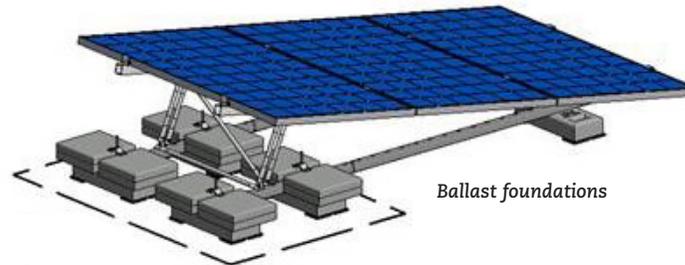
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

Note 1: The extra ballast must be equally divided over the ballast foundations.

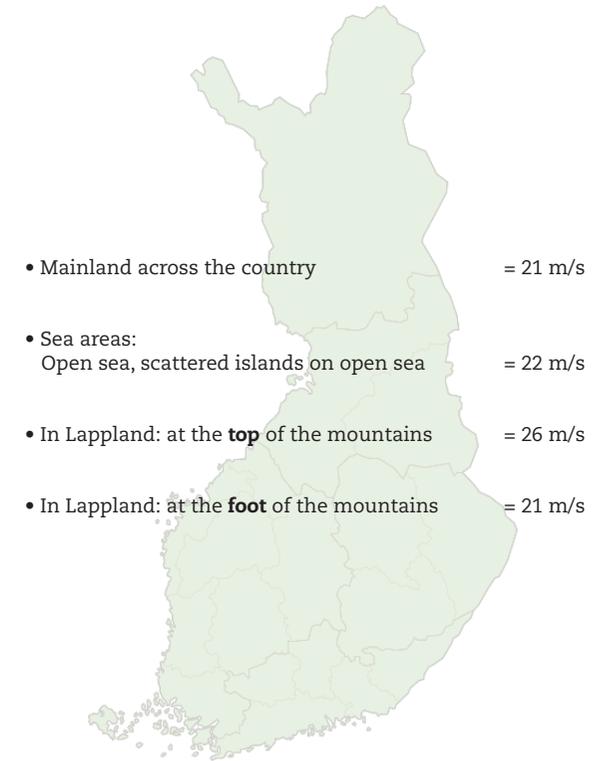
Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

## Environmental factors

Position	Middle zone roof
Terrain category	III (villages, suburban terrain, permanent forest)
Roofing materials	Bitumen



## Windmap Finland



Panel: maximum dimensions 1800x1100 mm (21 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
21 m/s	11,0	44,0	70,0	101,0	126,0	kg
	1,5	5,0	8,0	11,5	14,0	tiles
22 m/s	31,0	68,0	97,0	131,0	158,0	kg
	3,5	8,0	11,0	15,0	18,0	tiles
26 m/s	124,0	175,0	215,0	263,0	X	kg
	14,0	19,5	24,0	29,5	X	tiles

Panel: maximum dimensions 2100x1100 mm (24 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
21 m/s	37,0	76,0	107,0	143,0	172,0	kg
	4,5	8,5	12,0	16,0	19,5	tiles
22 m/s	61,0	104,0	137,0	177,0	209,0	kg
	7,0	12,0	15,5	20,0	23,5	tiles
26 m/s	169,0	229,0	275,0	X	X	kg
	19,0	25,5	31,0	X	X	tiles

X = the required ballast is higher than will fit under the system. The system must be mechanically attached to the roof. Please contact Van der Valk Solar Systems.

\* If you use tiles of different sizes and thus another weight, you need to adjust the number of tiles to get the right weight.

## Required ballast | Poland

### General

The ValkTriple® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In **three steps** you can easily calculate the required ballast;

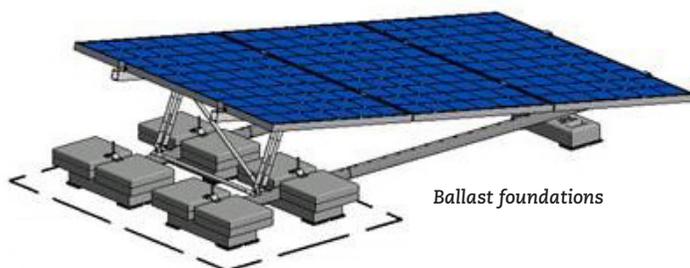
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

Note 1: The extra ballast must be equally divided over the ballast foundations.

Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

### Environmental factors

Position	Middle zone roof
Terrain category	III (villages, suburban terrain, permanent forest)
Roofing materials	Bitumen



### Windmap Poland



Panel: maximum dimensions 1800x1100 mm (21 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
1	58,0	82,0	101,0	124,0	144,0	kg
	6,5	9,5	11,5	14,0	16,0	tiles
2	161,0	194,0	221,0	254,0	281,0	kg
	18,0	22,0	25,0	28,5	31,5	tiles
3	58,0	82,0	101,0	124,0	144,0	kg
	6,5	9,5	11,5	14,0	16,0	tiles

Panel: maximum dimensions 2100x1100 mm (24 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
1	92,0	120,0	142,0	170,0	192,0	kg
	10,5	13,5	16,0	19,0	21,5	tiles
2	212,0	251,0	282,0	X	X	kg
	24,0	28,0	31,5	X	X	tiles
3	92,0	120,0	142,0	170,0	192,0	kg
	10,5	13,5	16,0	19,0	21,5	tiles

X = the required ballast is higher than will fit under the system. The system must be mechanically attached to the roof. Please contact Van der Valk Solar Systems.

\* If you use tiles of different sizes and thus another weight, you need to adjust the number of tiles to get the right weight.

## Required ballast | Spain

### General

The ValkTriple® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In **three steps** you can easily calculate the required ballast;

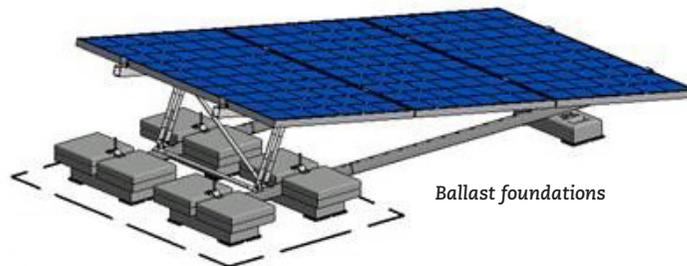
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

Note 1: The extra ballast must be equally divided over the ballast foundations.

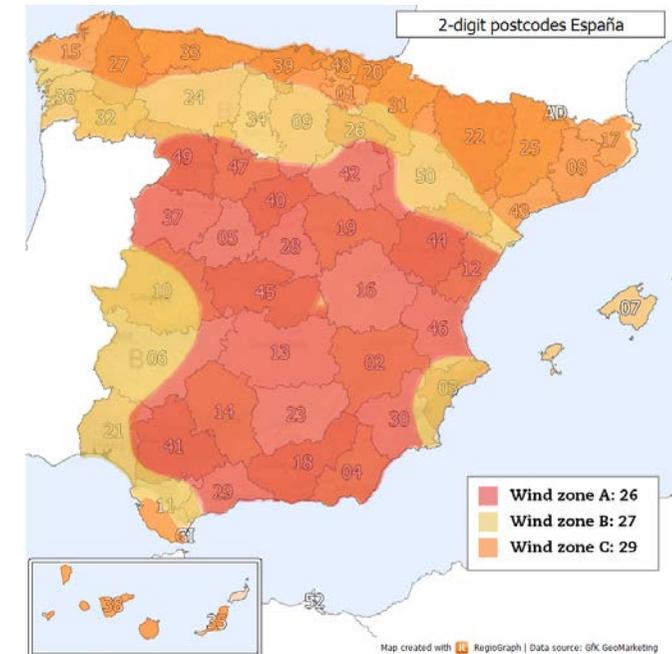
Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

### Environmental factors

Position	Middle zone roof
Terrain category	III (villages, suburban terrain, permanent forest)
Height above sea level	< 1000 m
Roofing materials	Concrete



### Windmap Spain



Panel: maximum dimensions 1800x1100 mm (21 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
26 m/s	125,0	147,0	184,0	228,0	264,0	kg
	14,0	16,5	20,5	25,5	29,5	tiles
27 m/s	150,0	174,0	214,0	262,0	X	kg
	17,0	19,5	24,0	29,5	X	tiles
29 m/s	205,0	232,0	278,0	X	X	kg
	23,0	26,0	31,0	X	X	tiles

Panel: maximum dimensions 2100x1100 mm (24 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
26 m/s	170,0	196,0	239,0	X	X	kg
	19,0	22,0	27,0	X	X	tiles
27 m/s	200,0	228,0	275,0	X	X	kg
	22,5	25,5	31,0	X	X	tiles
29 m/s	263,0	X	X	X	X	kg
	29,5	X	X	X	X	tiles

X = the required ballast is higher than will fit under the system. The system must be mechanically attached to the roof. Please contact Van der Valk Solar Systems.

\* If you use tiles of different sizes and thus another weight, you need to adjust the number of tiles to get the right weight.

# Required ballast | Portugal

## General

The ValkTriple® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In **three steps** you can easily calculate the required ballast;

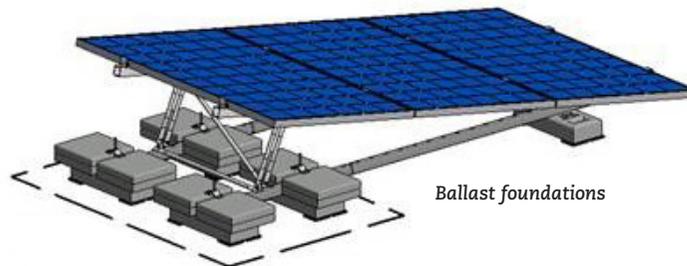
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

Note 1: The extra ballast must be equally divided over the ballast foundations.

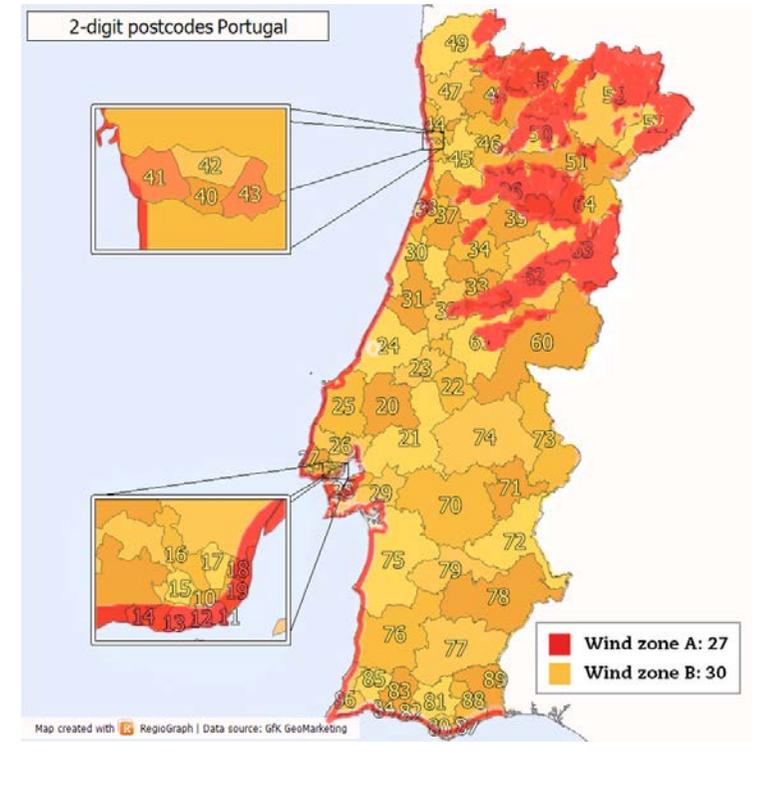
Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

## Environmental factors

Position	Middle zone roof
Terrain category	III (villages, suburban terrain, permanent forest)
Height above sea level	< 1000 m
Roofing materials	Concrete



## Windmap Portugal



Panel: maximum dimensions 1800x1100 mm (21 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
27 m/s	150,0	174,0	214,0	262,0	X	kg
	17,0	19,5	24,0	29,5	X	tiles
30 m/s	233,0	262,0	X	X	X	kg
	26,0	29,5	X	X	X	tiles

Panel: maximum dimensions 2100x1100 mm (24 kg)

Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
27 m/s	200,0	228,0	275,0	X	X	kg
	22,5	25,5	31,0	X	X	tiles
30 m/s	X	X	X	X	X	kg
	X	X	X	X	X	tiles

X = the required ballast is higher than will fit under the system. The system must be mechanically attached to the roof. Please contact Van der Valk Solar Systems.

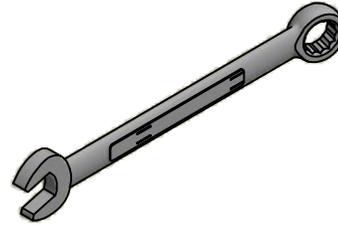
\* If you use tiles of different sizes and thus another weight, you need to adjust the number of tiles to get the right weight.

# Recommended installation tools

## ValkTriple



Cordless drill  
(for socket 13 and bit T-30)



Wrench 13



Socket 13



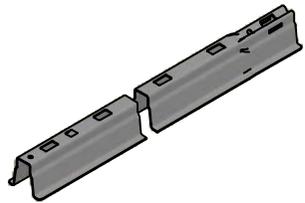
Torx bit T-30



Measuring tape

# Required materials

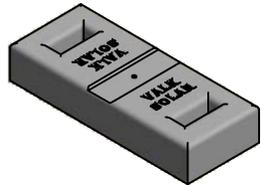
## ValkTriple



Roof carrier profile 1000mm (741801000)  
Roof carrier profile 1500mm (741801600)  
Installation: Page 01



Coupling set (774221)  
Installation: Page 01



Concrete mass block (750520)  
Installation: Page 01



Rubber tile carrier (729610)  
Installation: Page 01



SS bolt M8x65 (774065)  
Installation: Page 01



SS washer M8 125A (774009)  
Installation: Page 01



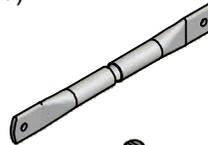
Threaded rod M8x220 (747974)  
Installation: Page 01



SS flange nut M8 (774006)  
Installation: Page 01/03/04/05/06



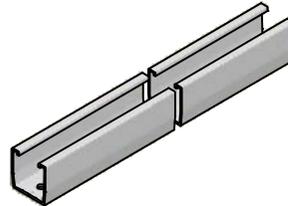
A-frame connector (724420)  
Installation: Page 02



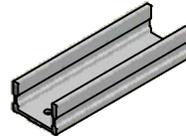
Alu. support (G13032208250000)  
Installation: Page 03



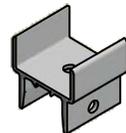
Hammerheadbolt M8x20 (774220)  
Installation: Page 03



Alu. profile 2100mm (7272100)  
Alu. profile 1010mm (7271010)  
Alu. extension profile:  
757050 = 1010-1046 mm  
757051 = 1038-1065 mm  
757052 = 1065-1100 mm  
Installation: Page 04



Alu. profile coupling (004850)  
Installation: Page 04



Alu. hinge 50mm (724450)  
Installation: Page 04



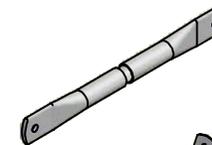
A-frame connector (724414)  
Installation: Page 04



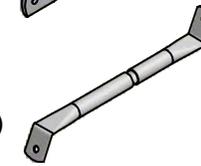
SS bolt M8x20 (774020)  
Installation: Page 04



SS bolt M8x80 (774081)  
Installation: Page 04



Alu. support (G13057703800000)  
Installation: Page 05



Alu. support (G13032208656565)  
Installation: Page 05



Alu. tile clamp (725140)  
Installation: Page 06



Ballast tile (7506303045)  
Installation: Page 06



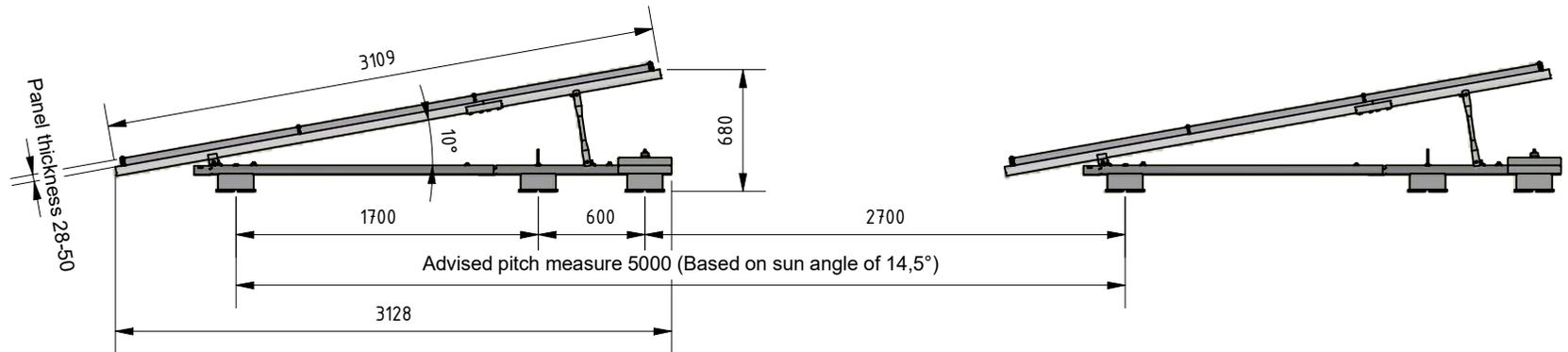
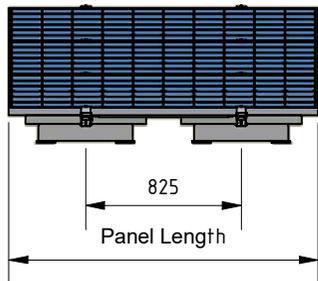
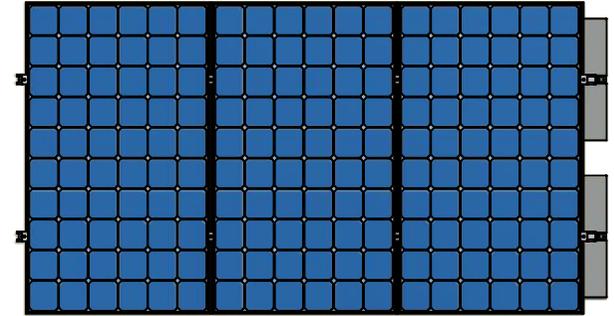
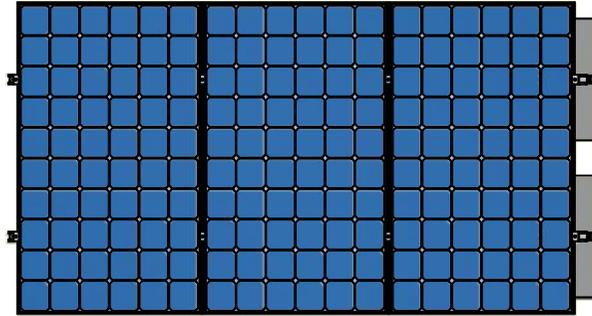
End clamp (721552)  
Installation: Page 07



Panel clamp (721550)  
Installation: Page 08



Cable clamp (732001)  
Installation: Page 09



### Valk Hint!

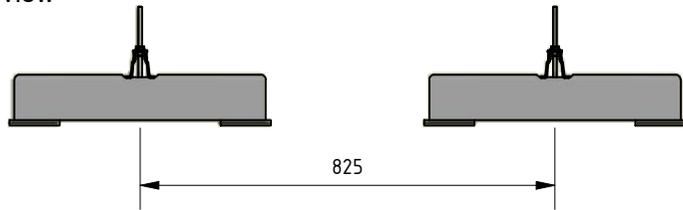
1) Place the mass block on the correct locations before mounting the roof carriers.

**VAN DER VALK**



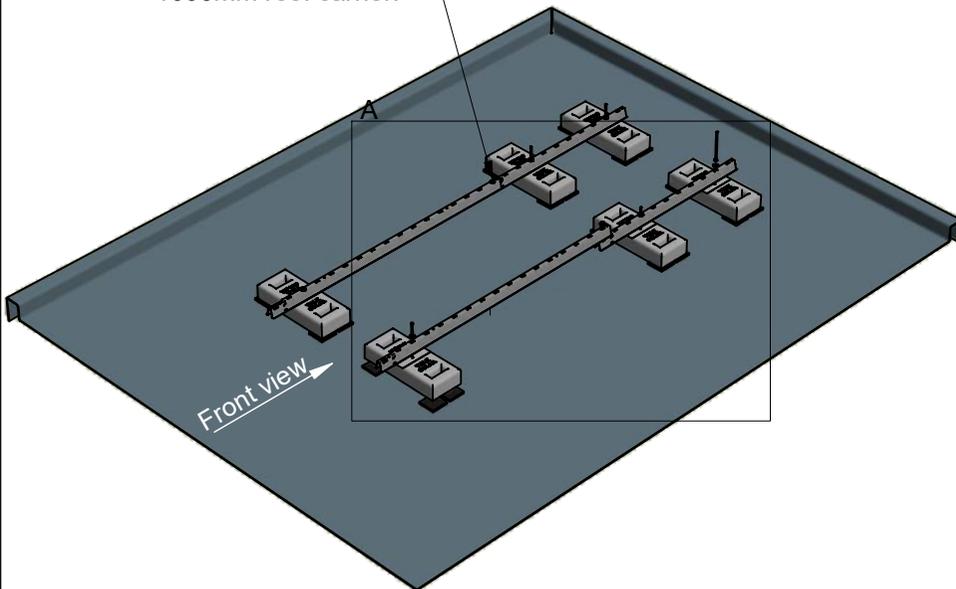
**SOLAR SYSTEMS**

Front view

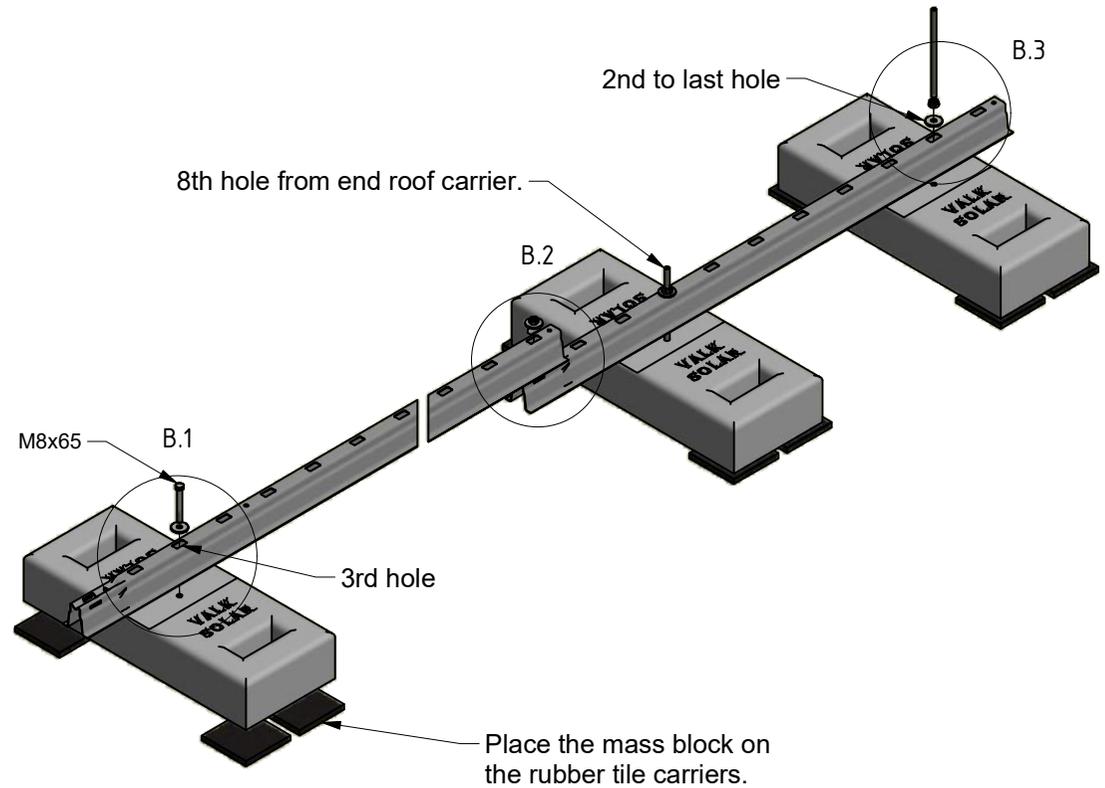


825

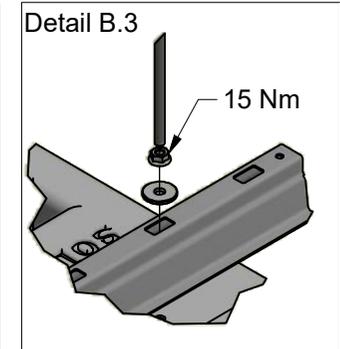
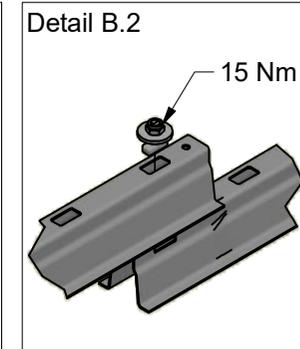
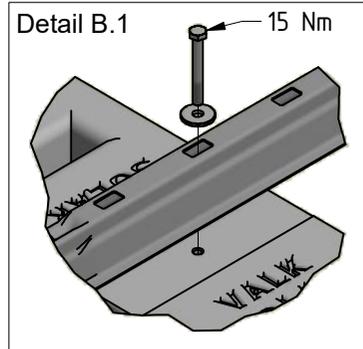
⚠ Attention! the 1600mm roof carrier is placed in front of the 1000mm roof carrier.



Detail A

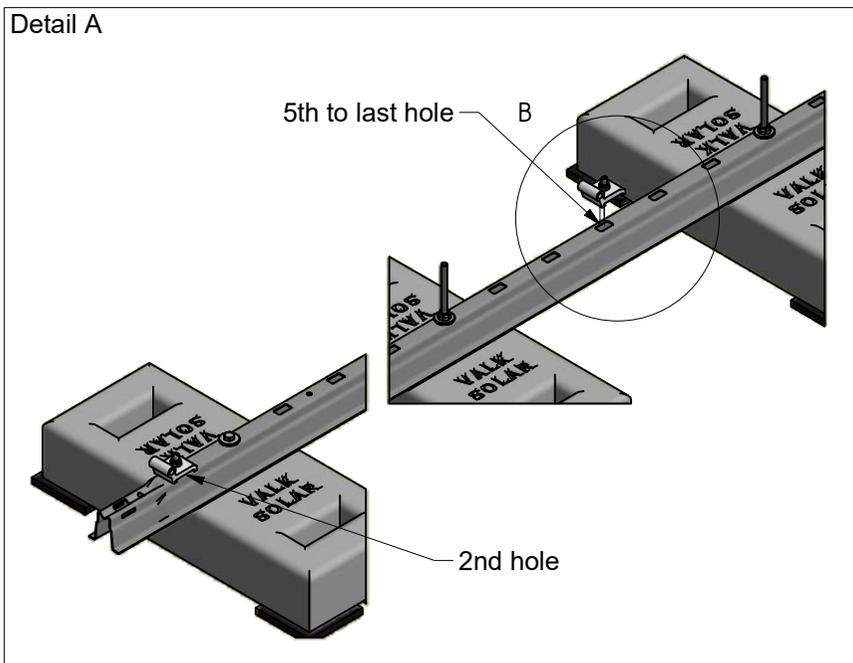


Mount the mass block to the roof carriers in the correct positions.

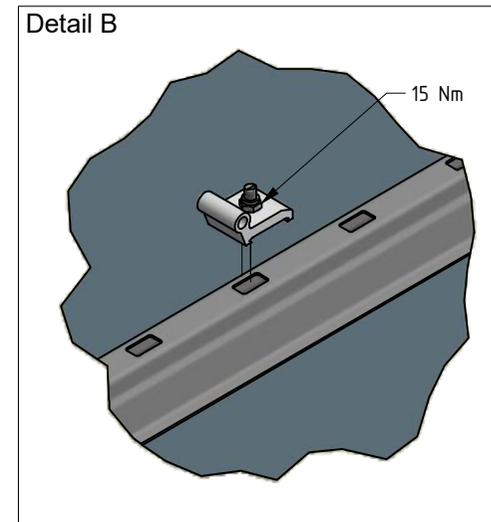




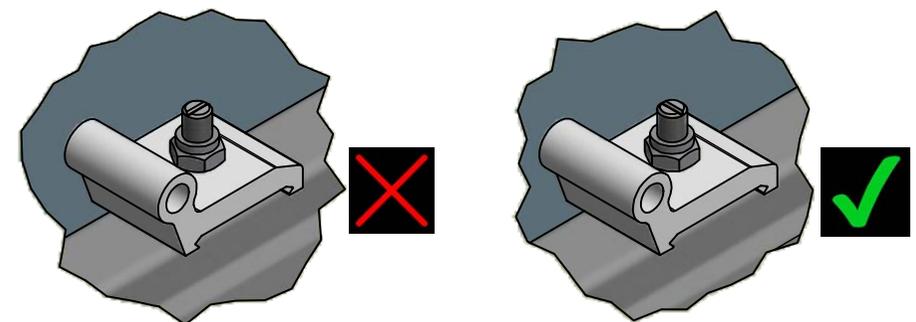
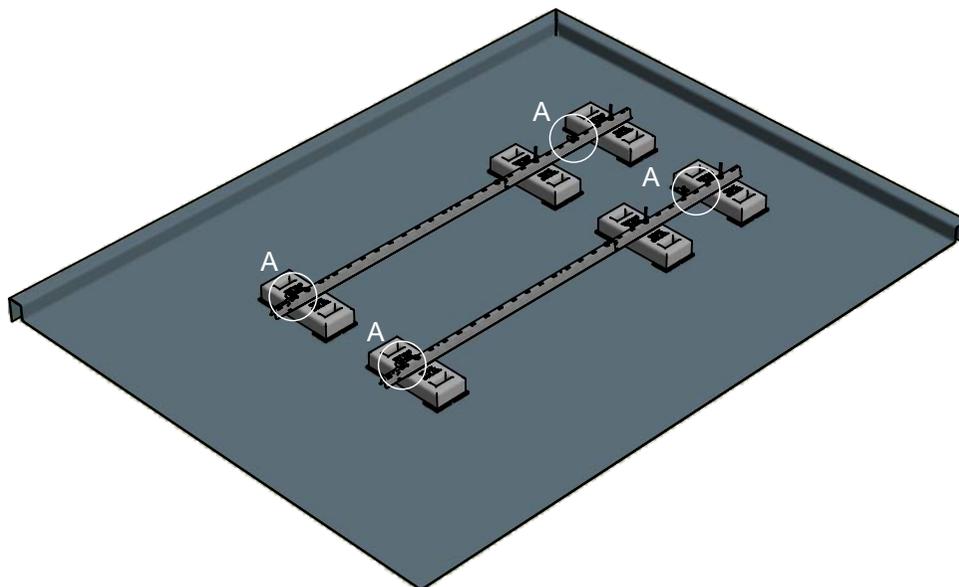
Detail A



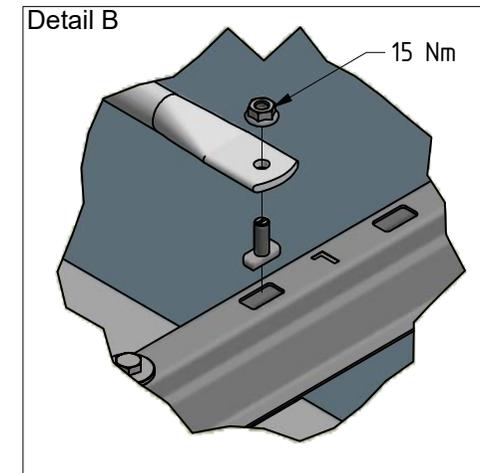
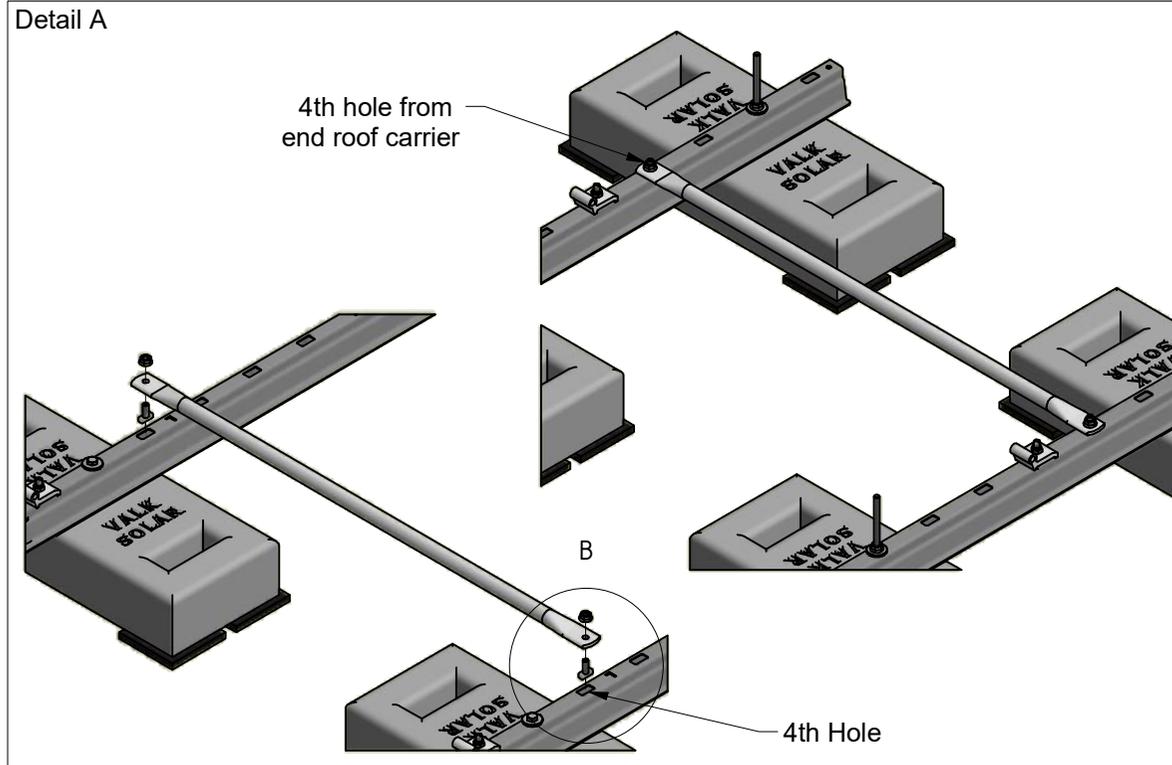
Detail B



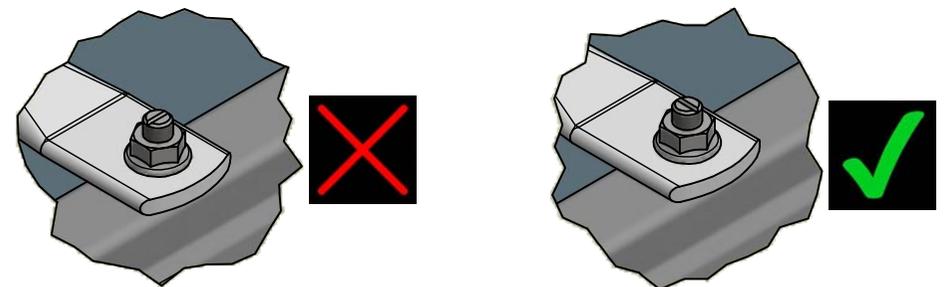
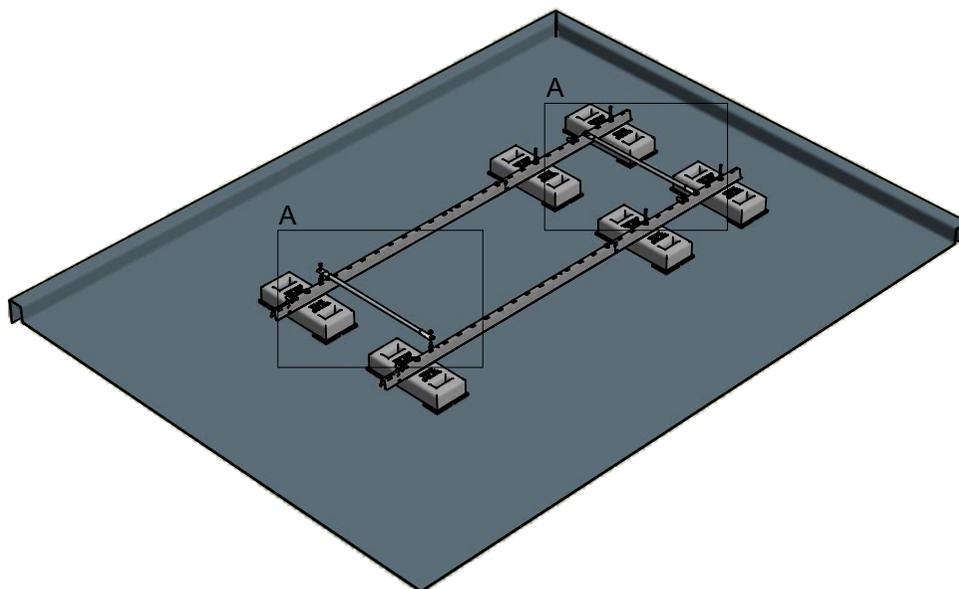
Mount the connector pieces on the roof carriers. Make sure they are placed as shown in the drawing.



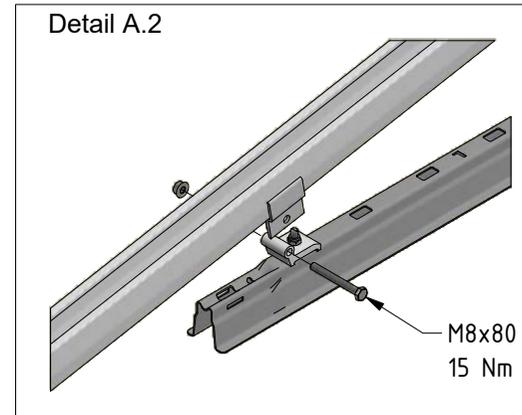
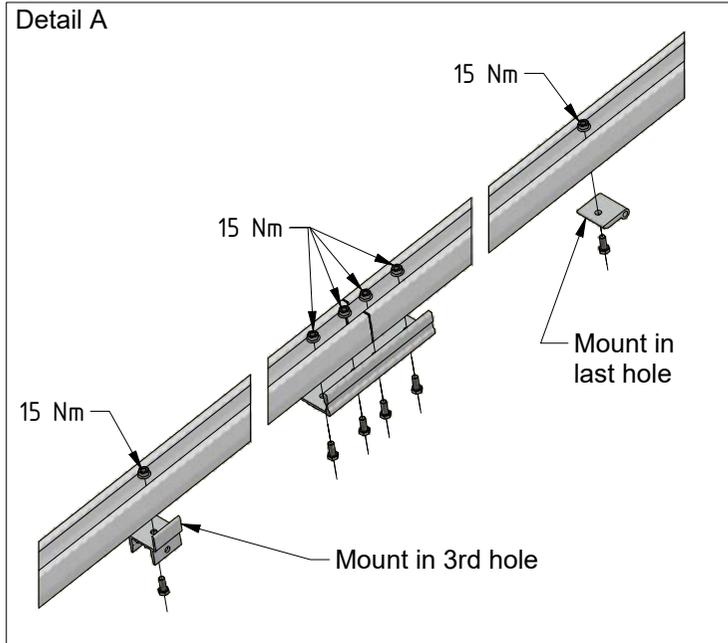
 The groove on the bolt corresponds with the orientation of the bolt head!



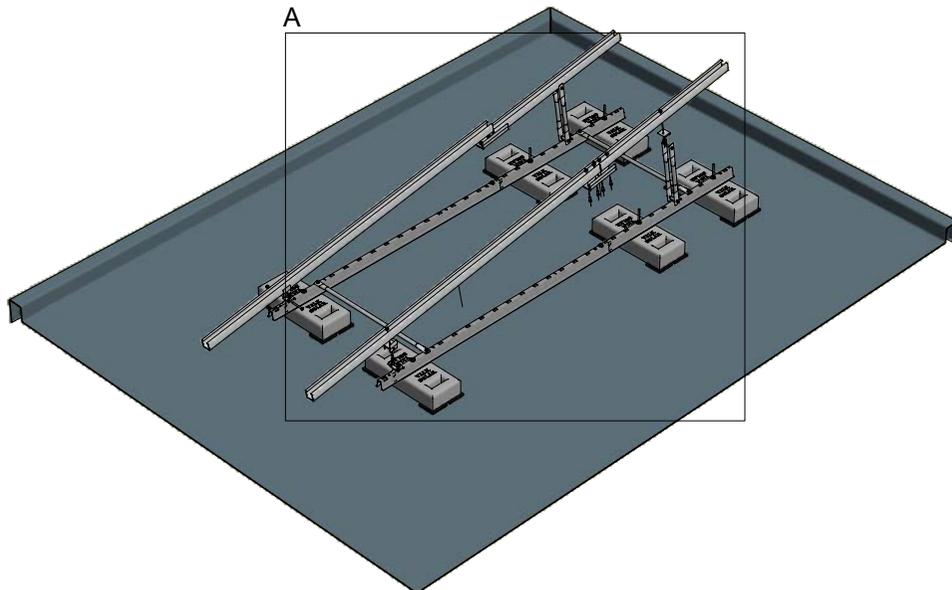
Mount the push rods on the roof carriers to connect the two rows.



The groove on the bolt corresponds with the orientation of the bolt head!

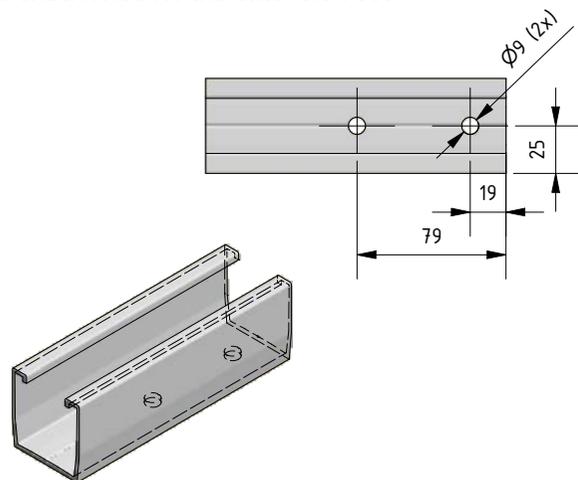


**ValkHint!**  
Mount the aluminium profile with the connector pieces/coupling first. Then mount the profile to the roof carrier.

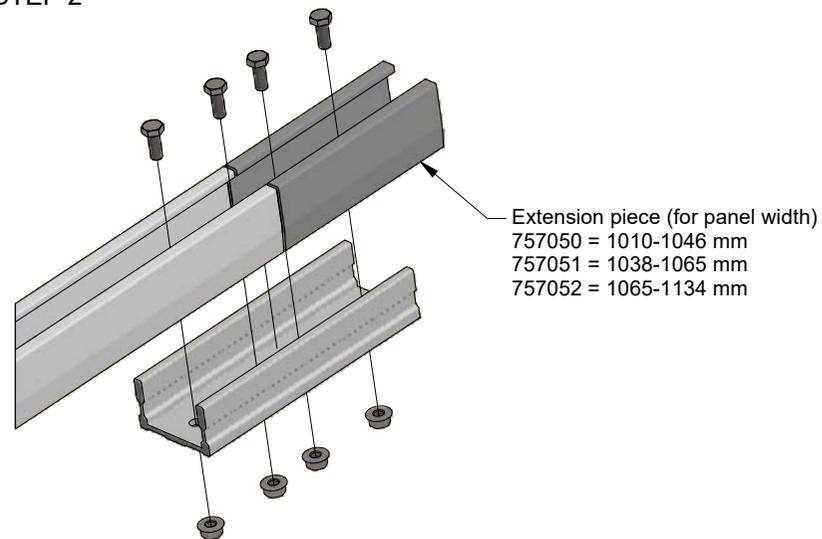




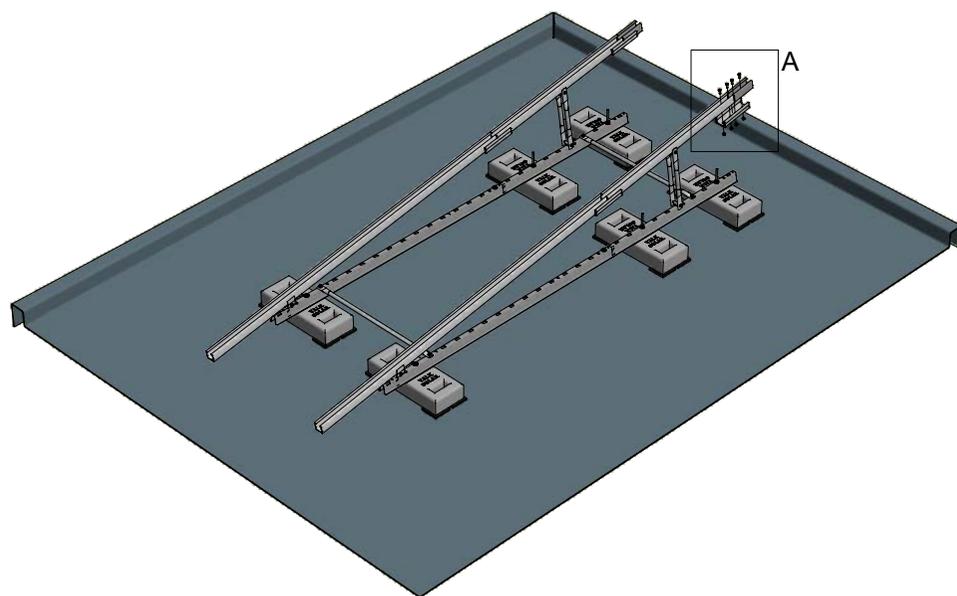
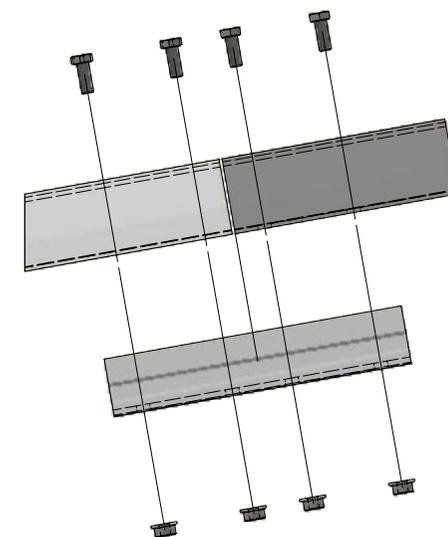
**STEP 1**  
Drill extra holes for the extension set

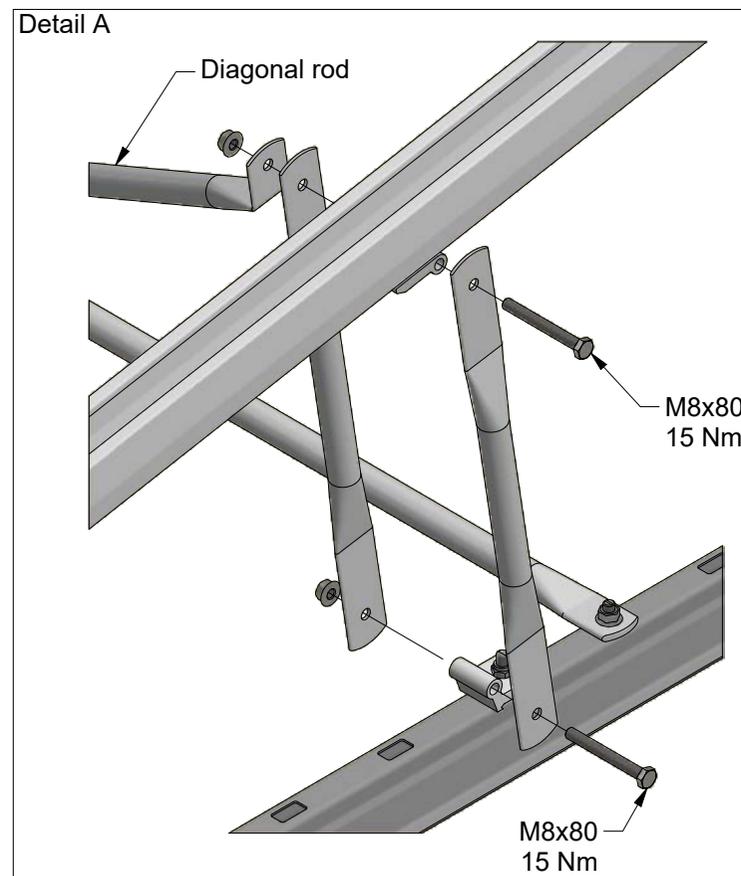
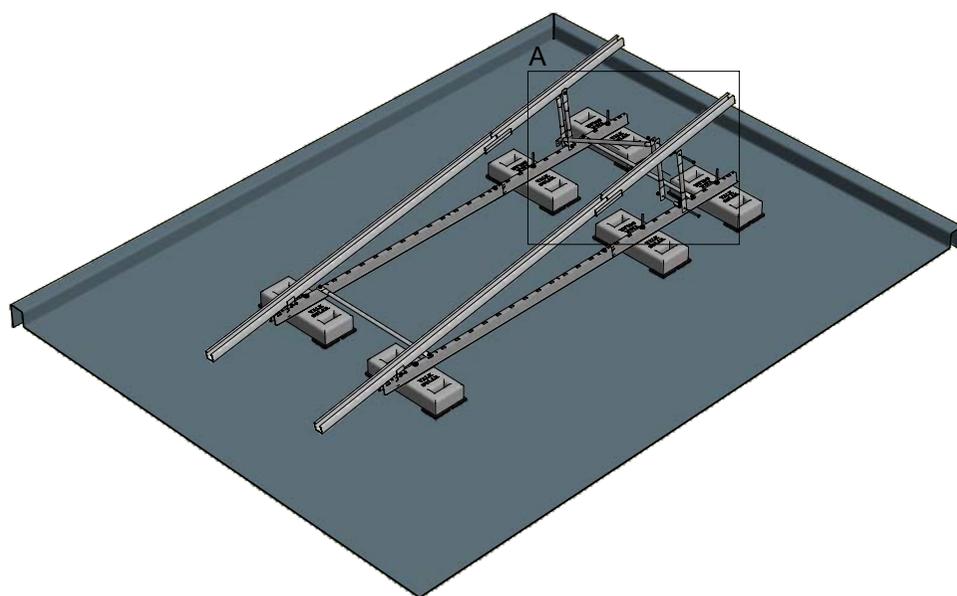


**STEP 2**



**Side view**

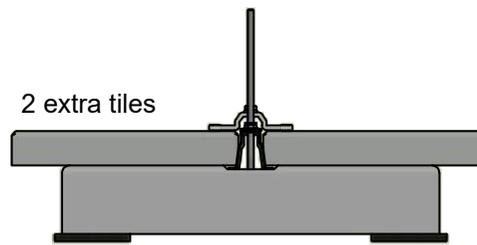
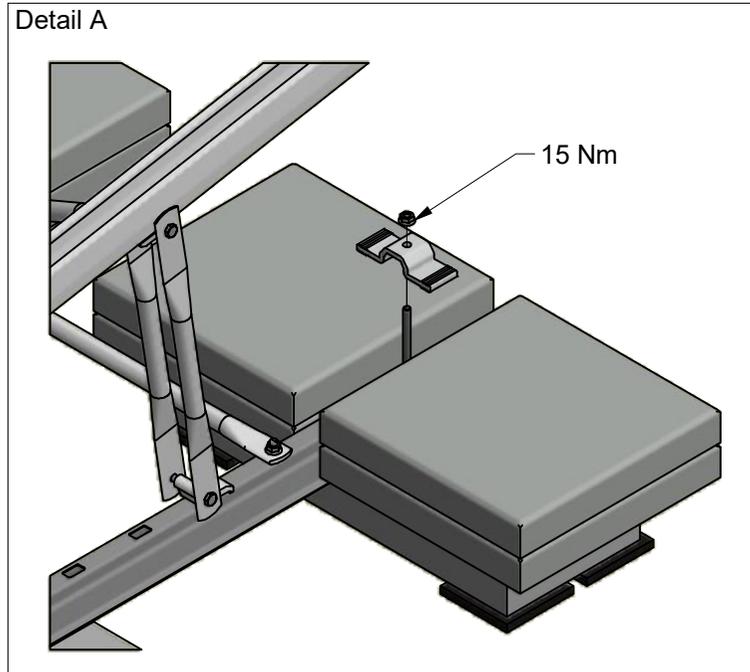




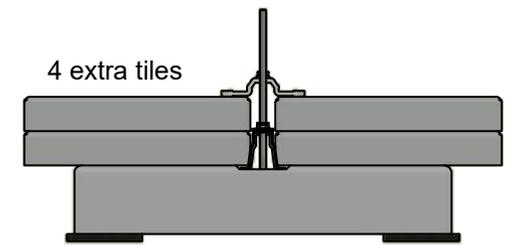
Mount the push rods between the aluminium profile and the roof carrier.



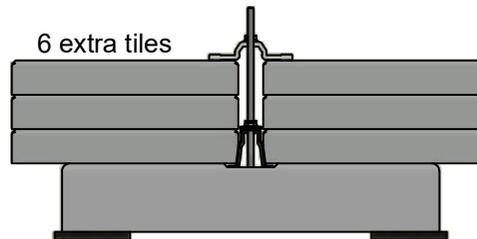
Detail A



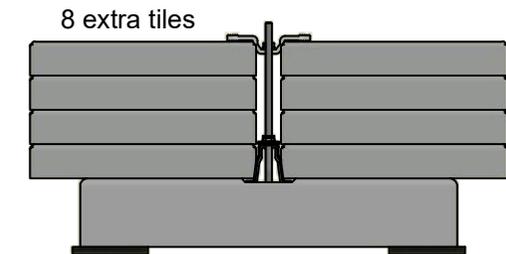
2 extra tiles



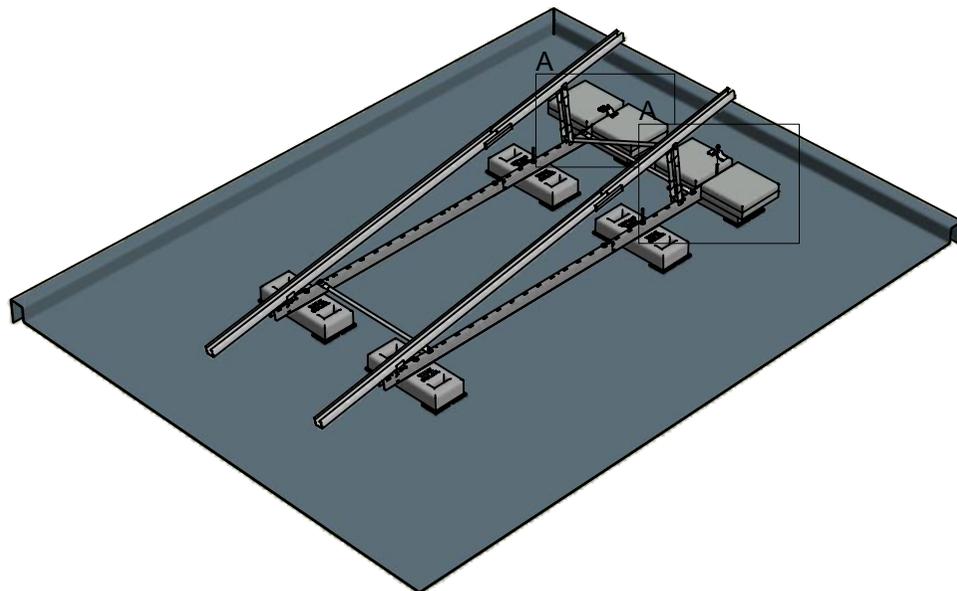
4 extra tiles



6 extra tiles



8 extra tiles



For the required number of tiles check the ballast tables in front of this manual.



Step 1

Take the end clamp out if it's slot for an easier assembly.

Step 2

Step 3

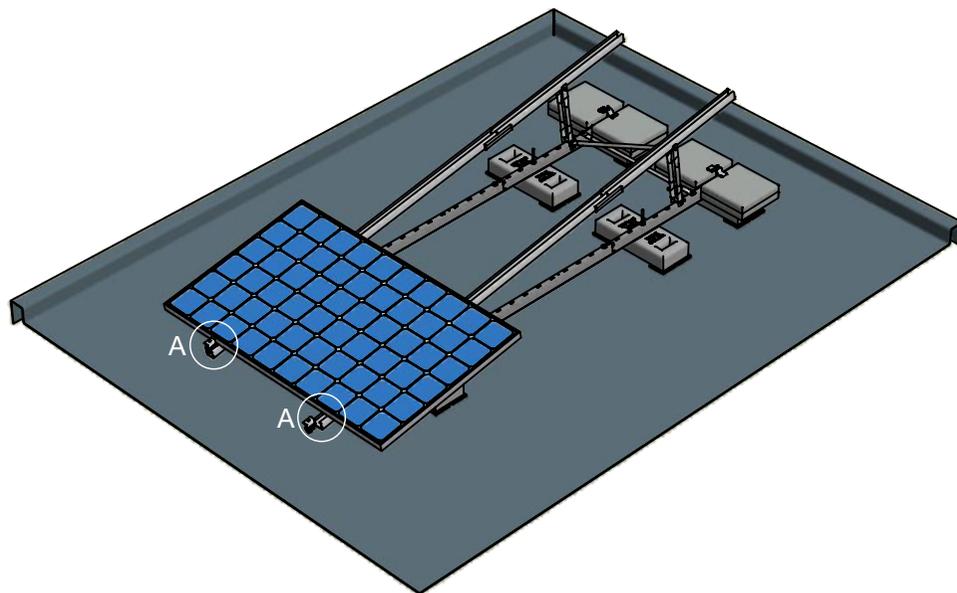
The end clamp can only be turned clockwise, so make sure the clamp is placed in the right way.

Step 4

Put the end clamp in the right slot to continue the assembly.

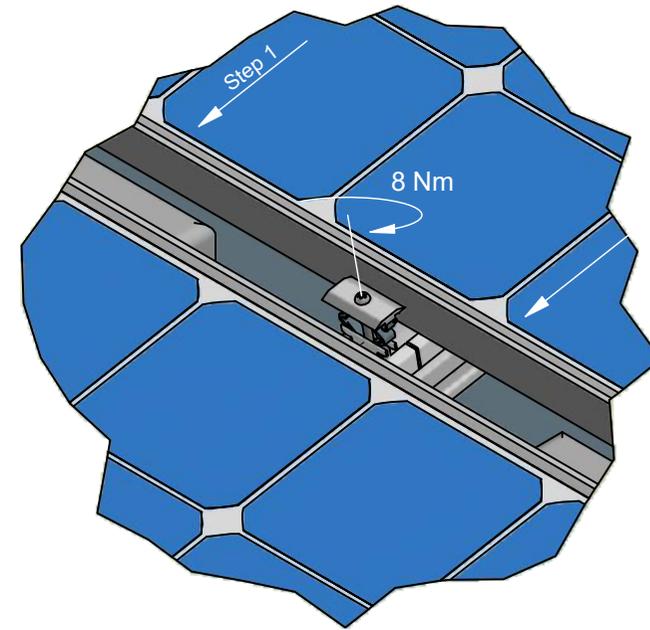
Step 5

8 Nm

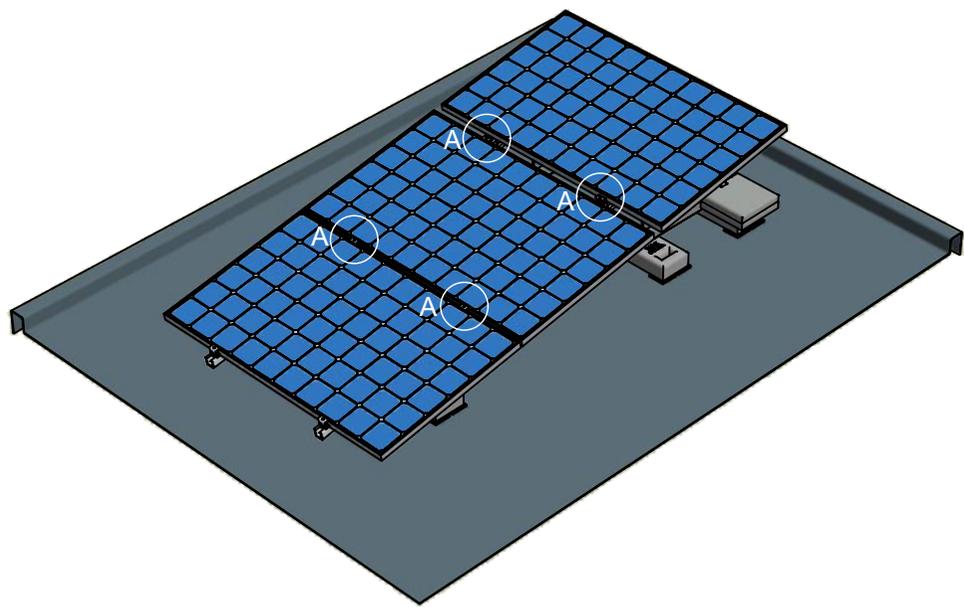


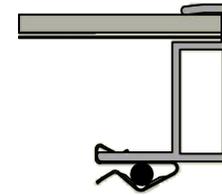
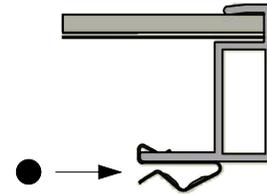
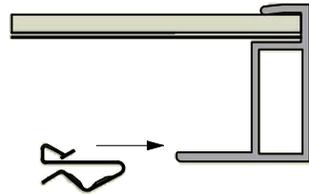


Detail A



 Attention!! Do not forget to install the end clamp above the third panel! (Same installation as other end clamps, page 07.)





Mount cable clamp on the panel.

