VAN DER VALK
SOLAR SYSTEMS

Installation manual ValkDouble

Version 01 | January 2023

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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.

Installation manual ValkDouble

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

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 ValkDouble mounting system is a product of:
Van der Valk Solar Systems BV
Netherlands Chamber of Commerce: 27355116
www.valksolarsystems.com

Required ballast | The Netherlands

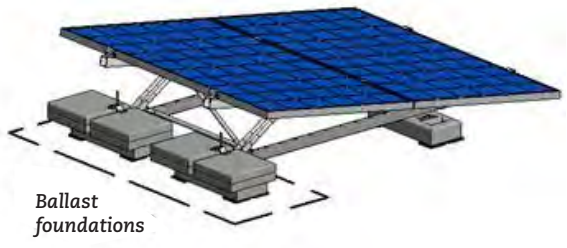
General
The ValkDouble® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In three steps you can easily calculate the required ballast;

- 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

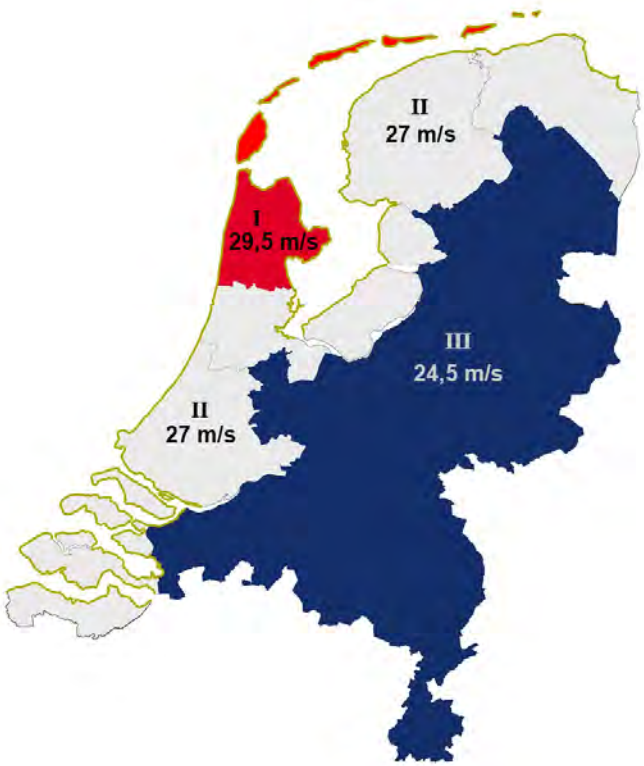
Note 1: The extra ballast must be equally divided over the ballast foundations.
Note 2: The max. of 16 tiles can be placed for extra ballast (144 kg).

Environmental factors

Position	Middle zone roof
Terrain category	Builded 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)	142,0	142,0	X	X	X	kg
	16,0	16,0	X	X	X	tiles
II (27 m/s)	95,0	95,0	123,0	X	X	kg
	11,0	11,0	14,0	X	X	tiles
III (24,5 m/s)	54,0	54,0	75,0	102,0	124,0	kg
	6,0	6,0	8,5	11,5	14,0	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)	X	X	X	X	X	kg
	X	X	X	X	X	tiles
II (27 m/s)	127,0	127,0	X	X	X	kg
	14,5	14,5	X	X	X	tiles
III (24,5 m/s)	77,0	77,0	104,0	136,0	X	kg
	9,0	9,0	12,0	15,5	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 | Belgium

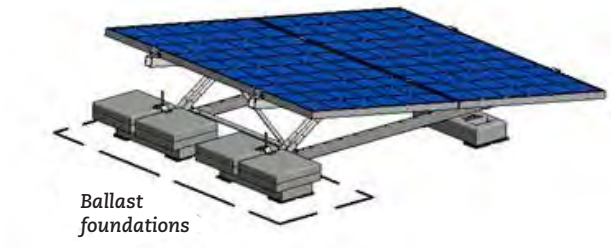
General
The ValkDouble® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In three steps you can easily calculate the required ballast;

- 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

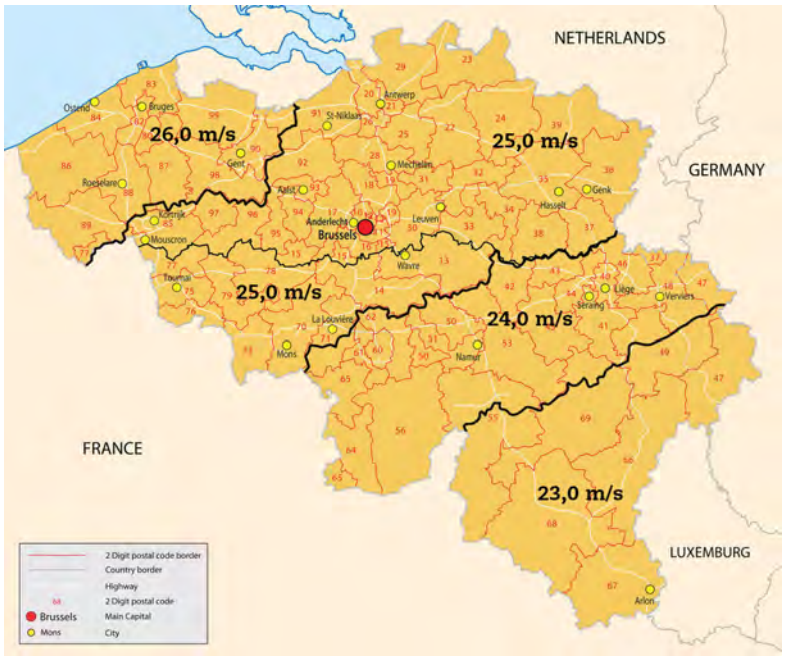
Note 1: The extra ballast must be equally divided over the ballast foundations.
Note 2: The max. of 16 tiles can be placed for extra ballast (144 kg).

Environmental factors

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



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	27,0	41,0	51,0	69,0	86,0	kg
	3,0	5,0	6,0	8,0	10,0	tiles
24 m/s	35,0	49,0	64,0	87,0	105,0	kg
	4,0	5,5	7,5	10,0	12,0	tiles
25 m/s	42,0	60,0	81,0	106,0	125,0	kg
	5,0	7,0	9,0	12,0	14,0	tiles
26 m/s	51,0	76,0	98,0	125,0	X	kg
	6,0	8,5	11,0	14,0	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	
23 m/s	39,0	54,0	72,0	97,0	116,0	kg
	4,5	6,0	8,0	11,0	13,0	tiles
24 m/s	47,0	68,0	91,0	118,0	139,0	kg
	5,5	8,0	10,5	13,5	15,5	tiles
25 m/s	56,0	86,0	110,0	139,0	X	kg
	6,5	10,0	12,5	15,5	X	tiles
26 m/s	71,0	105,0	131,0	X	X	kg
	8,0	12,0	15,0	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 | Germany

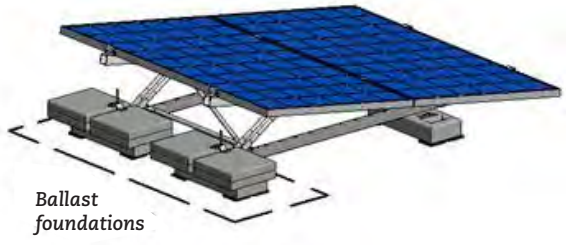
General
The ValkDouble® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In three steps you can easily calculate the required ballast;

- 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

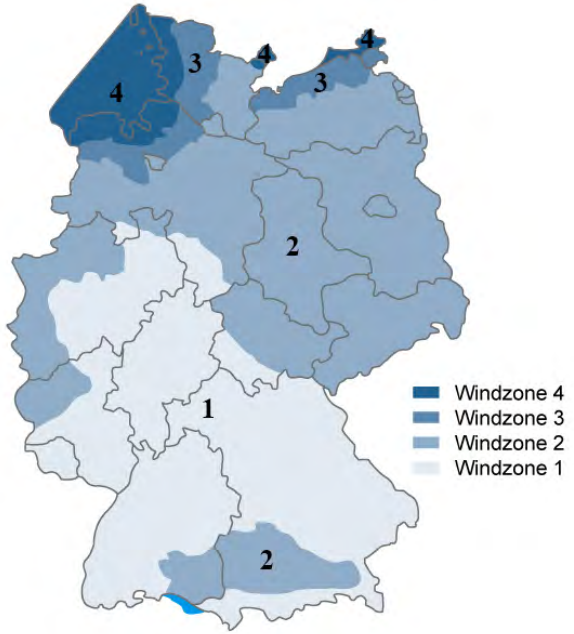
Note 1: The extra ballast must be equally divided over the ballast foundations.
Note 2: The max. of 16 tiles can be placed for extra ballast (144 kg).

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)	28,0	28,0	28,0	28,0	28,0	kg
	3,5	3,5	3,5	3,5	3,5	tiles
2 (25 m/s)	49,0	49,0	49,0	49,0	49,0	kg
	5,5	5,5	5,5	5,5	5,5	tiles
3 (27,5 m/s)	81,0	81,0	81,0	81,0	81,0	kg
	9,0	9,0	9,0	9,0	9,0	tiles
4 (30 m/s)	122,0	122,0	122,0	122,0	122,0	kg
	14,0	14,0	14,0	14,0	14,0	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 (22,5 m/s)	40,0	40,0	40,0	40,0	40,0	kg
	4,5	4,5	4,5	4,5	4,5	tiles
2 (25 m/s)	67,0	67,0	67,0	67,0	67,0	kg
	7,5	7,5	7,5	7,5	7,5	tiles
3 (27,5 m/s)	111,0	111,0	111,0	111,0	111,0	kg
	12,5	12,5	12,5	12,5	12,5	tiles
4 (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.*

Required ballast | United Kingdom

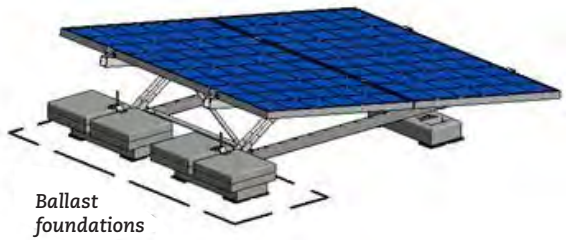
General
The ValkDouble® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In three steps you can easily calculate the required ballast;

- 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 16 tiles can be placed for extra ballast (144 kg).

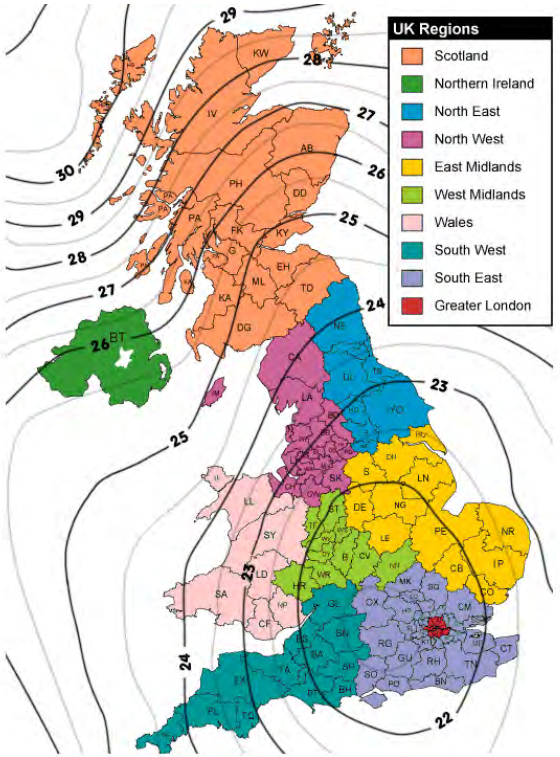
Environmental factors

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



Ballast foundations

Windmap United Kingdom



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	92,0	107,0	X	X	kg
	6,5	10,5	12,0	X	X	tiles
23 m/s	71,0	113,0	130,0	X	X	kg
	8,0	13,0	14,5	X	X	tiles
24 m/s	90,0	135,0	X	X	X	kg
	10,0	15,0	X	X	X	tiles
25 m/s	109,0	X	X	X	X	kg
	12,5	X	X	X	X	tiles
26 m/s	128,0	X	X	X	X	kg
	14,5	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	
22 m/s	79,0	124,0	142,0	X	X	kg
	9,0	14,0	16,0	X	X	tiles
23 m/s	100,0	X	X	X	X	kg
	11,5	X	X	X	X	tiles
24 m/s	121,0	X	X	X	X	kg
	13,5	X	X	X	X	tiles
25 m/s	143,0	X	X	X	X	kg
	16,0	X	X	X	X	tiles
26 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 | Ireland

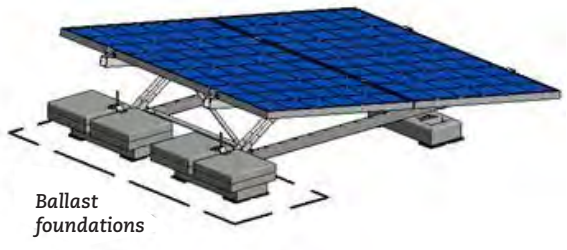
General
The ValkDouble® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In three steps you can easily calculate the required ballast;

- 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

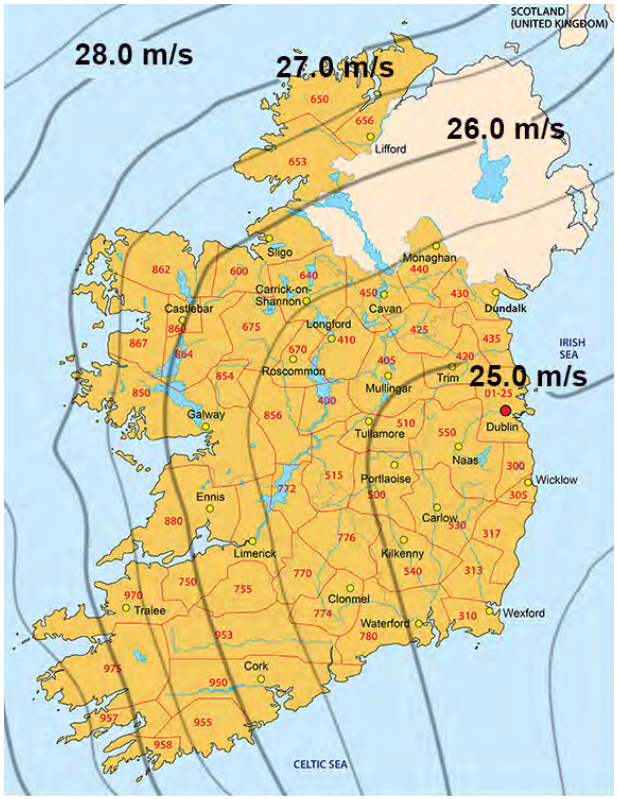
Note 1: The extra ballast must be equally divided over the ballast foundations.
Note 2: The max. of 16 tiles can be placed for extra ballast (144 kg).

Environmental factors

Position	Middle zone roof
Terrain category	Builded 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	109,0	X	X	X	X	kg
	12,5	X	X	X	X	tiles
26 m/s	128,0	X	X	X	X	kg
	14,5	X	X	X	X	tiles
27 m/s	X	X	X	X	X	kg
	X	X	X	X	X	tiles
28 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	
25 m/s	143,0	X	X	X	X	kg
	16,0	X	X	X	X	tiles
26 m/s	X	X	X	X	X	kg
	X	X	X	X	X	tiles
27 m/s	X	X	X	X	X	kg
	X	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

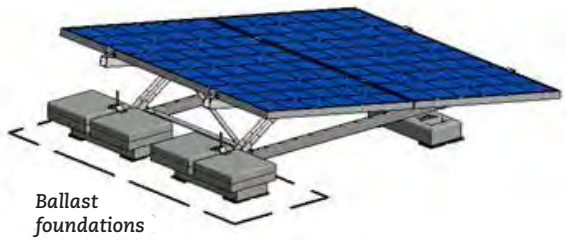
General
The ValkDouble® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In three steps you can easily calculate the required ballast;

- 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 16 tiles can be placed for extra ballast (144 kg).

Environmental factors

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



Windmap Norway

For determining the wind area see next page.

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	44,0	44,0	49,0	65,0	82,0	kg
	5,0	5,0	5,5	7,5	9,5	tiles
25 m/s	86,0	86,0	97,0	123,0	144,0	kg
	10,0	10,0	11,0	14,0	16,0	tiles
27 m/s	123,0	123,0	135,0	X	X	kg
	14,0	14,0	15,0	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

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	59,0	59,0	68,0	92,0	112,0	kg
	7,0	7,0	8,0	10,5	10,5	tiles
25 m/s	117,0	117,0	129,0	X	X	kg
	13,0	13,0	14,5	X	X	tiles
27 m/s	X	X	X	X	X	kg
	X	X	X	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.*

Wind area | Norway

	m/s
Provincie Østfold	**22**
Except Municipalities:	
Halden	24
Moss	24
Rygge	24
Råde	24
Sarpsborg	24
Våler	24
Fredrikstad	26
Hvaler	27
Provincie Akershus	**22**
Except Municipality:	
Vestby	24
Provincie Oslo	**22**
Provincie Hedmark	**22**
Except Municipalities:	
Alvdal	24
Folldal	24
Folldal near Trøndelag	24
Os	24
Os near Trøndelag	24
Tolga	24
Tynset	24
Tynset Kvikne	24
Tynset near Trøndelag	24
Provincie Oppland	**22**
Except Municipalities:	
Vågå	23
Dovre	24
Dovre near Trøndelag	24
Lom	24
Lom near Sogn og Fj.	24
Vang	24
Vang near Sogn og Fj.	24
Lesja	25
Lesja near Trøndelag/ Møre og Romsdal	25
Skjåk	25
Skjåk near Sogn og Fj./ Møre og Romsdal	25
Provincie Buskerud	**22**
Except Municipalities:	
Hemsedal	24
Hemsedal near Sogn og Fj.	24
Hol	24
Hol near Hordeland / Sogn og Fjordane	24
Hurum	24
Nore og Uvdal	24
Nore og Uvdal near Hordeland	24
Ål	24
Ål near Sogn og Fj.	24
Provincie Vestford	**23**
Except Municipalities:	
Hof	22
Lardal	22
Nøtterøy	24
Sandefjord	24
Stokke	24
Tønsberg	24
Larvik	25
Tjøme	26
Provincie Telemark	**22**
Except Municipalities:	
Bamble	23
Porsgrunn	23
Fyresdal	24
Kragerø	24
Tinn	24
Tokke	24
Vinje	24
Vinje near Rogaland/Hordaland	24
Provincie Aust-Agder	**24**
Except Municipalities:	
Arendal	26
Grimstad	26
Lillesand	26
Risør	26
Tvedestrand	26
Provincie Vest-Agder	**24**
Except Municipalities:	
Flekkefjord	26
Flekkefjord near Rogaland	26
Kristiansand	26
Lyngdal	26
Søngne	26
Farsund	28
Lindesnes	28
Mandal	28
Provincie Rogaland	**26**
Except Municipalities:	
Hjelmeland	24
Sauda	24
Suldal	24
Vindafjord	24
Eigersund	27
Sokndal	27
Bokn	28
Haugesund	28
Klepp	28
Randaberg	28
Rennesøy	28
Sola	28
Time	28
Hå	29
Kvitsøy	29
Karmøy	30
Utsira	30
Ølen	*Municipality isn't in the Wind standard*
Provincie Hordaland	**26**
Except Municipalities:	
Etne	24
Etne near the Folgefonna	24
Granvin	24
Kvam	24
Modalen	24
Samnanger	24
Ulvik	24
Vaksdal	24
Voss	24
Osterøy	25
Radøy	27
Austevoll	28
Austrheim	28
Bømlo	28
Fjell	28
Sund	28
Øygarden	29
Fedje	30
Provincie Sogn og Fjordane	**24**
Except Municipalities:	
Aurland	25
Eid	26
Fjaler	26
Førde	26
Førde near the Jostedalsbreen	26
Gaular	26
Gloppen	26
Gloppen near the Ålfotbreen and Jostedalsbreen	26
Hornindal	26
Hyllestad	26
Høyanger	26
Lærdal	26
Naustdal	26
Askvoll	28
Flora	28
Gulen	28
Bremanger	29
Bremanger near the Ålfotbreen	29
Solund	29
Selje	31
Vågsøy	31
Provincie Møre og Romsdal	**30**
Except Municipalities:	
Rindal	25
Surnadal	25
Nesset	26
Norddal	26
Stordal	26
Stranda	26
Sunndal	27
Gjemnes	28
Rauma	28
Sykkylven	28
Tingvoll	28
Volda	28
Ørskog	28
Ørsta	28
Eide	29
Halsa	29
Hareid	29
Molde	29
Skodje	29
Sula	29
Ålesund	29
Sandøy	31
Frei	*Municipality isn't in the Wind standard*
Tustna	*Municipality isn't in the Wind standard*
Provincie Sør-Trøndelag	**25**
Except Municipalities:	
Malvik	26
Oppdal	26
Rennebu	26
Trondheim	26
Agdenes	27
Rissa	27
Snillfjord	27
Hemne	28
Bjugn	29
Osen	29
Roan	29
Åfjord	29
Frøya	30
Hitra	30
Ørland	30
Provincie Nord-Trøndelag	**26**
Except Municipalities:	
Lierne	24
Meråker	25
Røyrvik	25
Snåsa	25
Flatanger	29
Fosnes	29
Leka	29
Leka on the mainland	29
Nærøy	29
Vikna	30
Provincie Nordland	**29**
Except Municipalities:	
Beiarn	26
Evenes	26
Fauske	26
Grane	26
Hattfjelldal	26
Hemnes	26
Rana	26
Saltdal	26
Sørfold	26
Ballangen	27
Tjeldsund	27
Tysfjord	27
Hamarøy	28
Narvik	28
Sortland	28
Vefsn	28
Vefsn along the fjord	28
Vefsn Mosjøen	28
Vevelstad	28
Alstahaug	30
Bindal	30
Bodø	30
Dønna	30
Flakstad	30
Herøy	30
Leirfjord	30
Lurøy	30
Lurøy on the mainland	30
Nesna	30
Sømna	30
Vega	30
Vestvågøy	30
Andøy	31
Moskenes	31
Røst	31
Træna	31
Værøy	31
Skjerstad	*Municipality isn't in the Wind standard*
Provincie Troms	**26**
Except Municipalities:	
Bardu	24
Målselv	24
Strofjord	24
Gáivuona/Kåfjord	25
Balsfjord	26
Gratangen	26
Ibestad	26
Lavangen	26
Lyngen	26
Salangen	26
Skånland	26
Sørreisa	26
Dyrøy	27
Harstad	27
Lenvik	27
Nordreisa	27
Tranøy	27
Tromsø	27
Bjarkøy	28
Kvænangen	28
Skjervøy	28
Karlsøy	29
Berg	30
Torsken	30
Provincie Finnmark	**29**
Except Municipalities:	
Kárájoga / Karasjok	24
Guovdageaidnu / Kautokeino	24
Deanu/Tana	27
Porsanger	27
Unjárgga / Nesseby	27
Alta	28
Berlevåg	30
Gamvik	30
Hasvik	30
Måsøy	30
Nordkapp	30
Vardø	30
Provincie Svalbard	**30**

Required ballast | Sweden

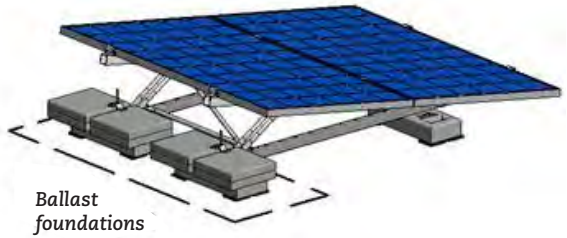
General
The ValkDouble® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In three steps you can easily calculate the required ballast;

- 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 16 tiles can be placed for extra ballast (144 kg).

Environmental factors

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



Ballast foundations

Windmap Sweden

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	11,0	23,0	31,0	42,0	51,0	kg
	1,5	3,0	3,5	5,0	6,0	tiles
23 m/s	18,0	30,0	40,0	51,0	63,0	kg
	2,0	3,5	4,5	6,0	7,0	tiles
24 m/s	25,0	38,0	48,0	64,0	81,0	kg
	3,0	4,5	5,5	7,5	9,0	tiles
25 m/s	32,0	46,0	58,0	81,0	99,0	kg
	4,0	5,5	6,5	9,0	11,0	tiles
26 m/s	39,0	55,0	74,0	98,0	118,0	kg
	4,5	6,5	8,5	11,0	13,5	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	
22 m/s	20,0	33,0	44,0	56,0	71,0	kg
	2,5	4,0	5,0	6,5	8,0	tiles
23 m/s	28,0	42,0	53,0	72,0	90,0	kg
	3,5	5,0	6,0	8,0	10,0	tiles
24 m/s	36,0	51,0	67,0	91,0	111,0	kg
	4,0	6,0	7,5	10,5	12,5	tiles
25 m/s	44,0	62,0	84,0	111,0	132,0	kg
	5,0	7,0	9,5	12,5	15,0	tiles
26 m/s	52,0	79,0	103,0	131,0	154,0	kg
	6,0	9,0	11,5	15,0	nb	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

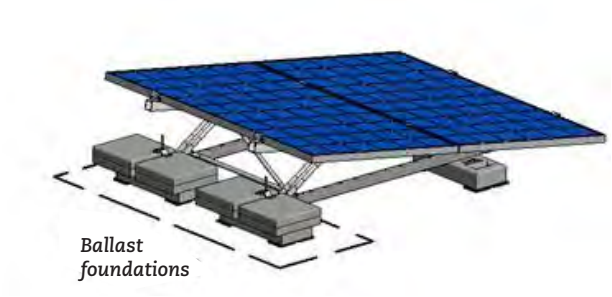
General
The ValkDouble® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In three steps you can easily calculate the required ballast;

- 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

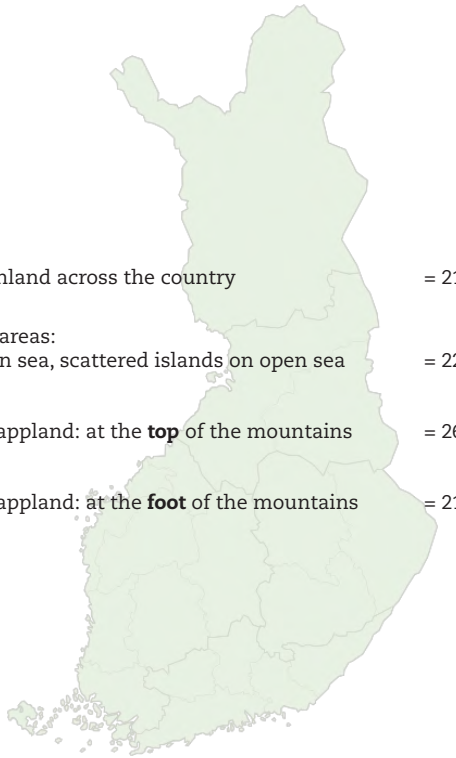
Note 1: The extra ballast must be equally divided over the ballast foundations.
Note 2: The max. of 16 tiles can be placed for extra ballast (144 kg).

Environmental factors

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



Windmap Finland



- Mainland across the country = 21 m/s
- Sea areas:
  Open sea, scattered islands on open sea = 22 m/s
- In Lappland: at the **top** of the mountains = 26 m/s
- In Lappland: at the **foot** of the mountains = 21 m/s

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	27,0	40,0	51,0	68,0	84,0	kg
	3,0	4,5	6,0	8,0	9,5	tiles
22 m/s	35,0	50,0	65,0	87,0	106,0	kg
	4,0	6,0	7,5	10,0	12,0	tiles
26 m/s	82,0	117,0	143,0	X	X	kg
	9,5	13,0	16,0	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	
21 m/s	38,0	54,0	71,0	95,0	115,0	kg
	4,5	6,0	8,0	11,0	13,0	tiles
22 m/s	48,0	69,0	92,0	118,0	139,0	kg
	5,5	8,0	10,5	13,5	15,5	tiles
26 m/s	112,0	X	X	X	X	kg
	12,5	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 | Poland

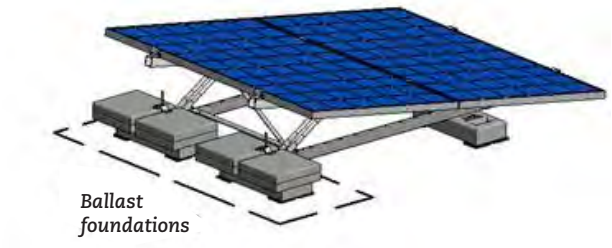
General
The ValkDouble® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In three steps you can easily calculate the required ballast;

- 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 16 tiles can be placed for extra ballast (144 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	46,0	55,0	67,0	83,0	96,0	kg
	5,5	6,5	7,5	9,5	11,0	tiles
2	107,0	129,0	X	X	X	kg
	12,0	14,5	X	X	X	tiles
3	46,0	55,0	67,0	83,0	96,0	kg
	5,5	6,5	7,5	9,5	11,0	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	62,0	80,0	95,0	113,0	128,0	kg
	7,0	9,0	11,0	13,0	14,5	tiles
2	141,0	X	X	X	X	kg
	16,0	X	X	X	X	tiles
3	62,0	80,0	95,0	113,0	128,0	kg
	7,0	9,0	11,0	13,0	14,5	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

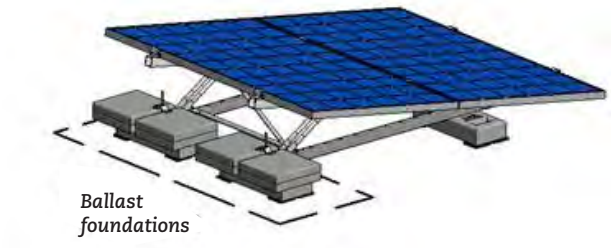
General
The ValkDouble® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In three steps you can easily calculate the required ballast;

- 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

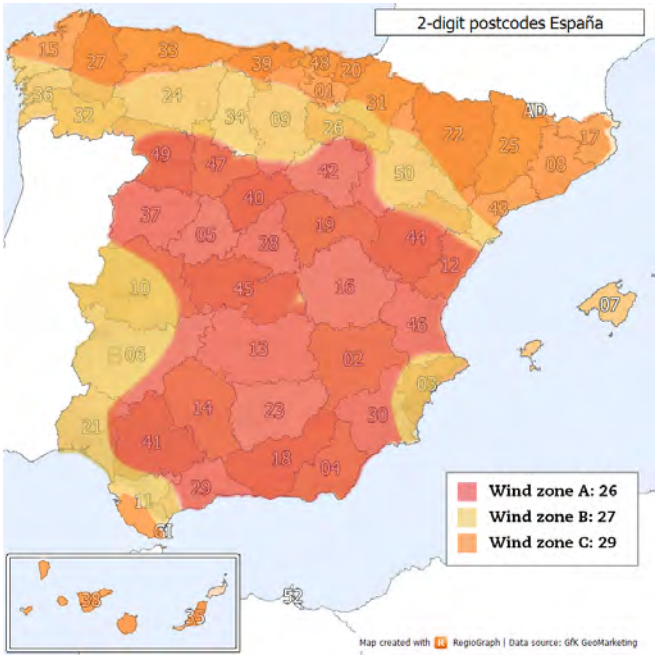
Note 1: The extra ballast must be equally divided over the ballast foundations.
Note 2: The max. of 16 tiles can be placed for extra ballast (144 kg).

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	89,0	104,0	130,0	X	X	kg
	10,0	12,0	14,5	X	X	tiles
27 m/s	107,0	123,0	X	X	X	kg
	12,0	14,0	X	X	X	tiles
29 m/s	144,0	X	X	X	X	kg
	16,0	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	
26 m/s	121,0	138,0	X	X	X	kg
	13,5	15,5	X	X	X	tiles
27 m/s	141,0	X	X	X	X	kg
	16,0	X	X	X	X	tiles
29 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 | Portugal

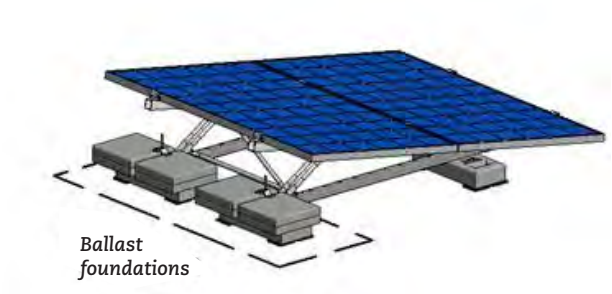
General
The ValkDouble® mounting system must be reinforced by means of tiles, which must be placed on the indicated ballast foundations. In three steps you can easily calculate the required ballast;

- 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

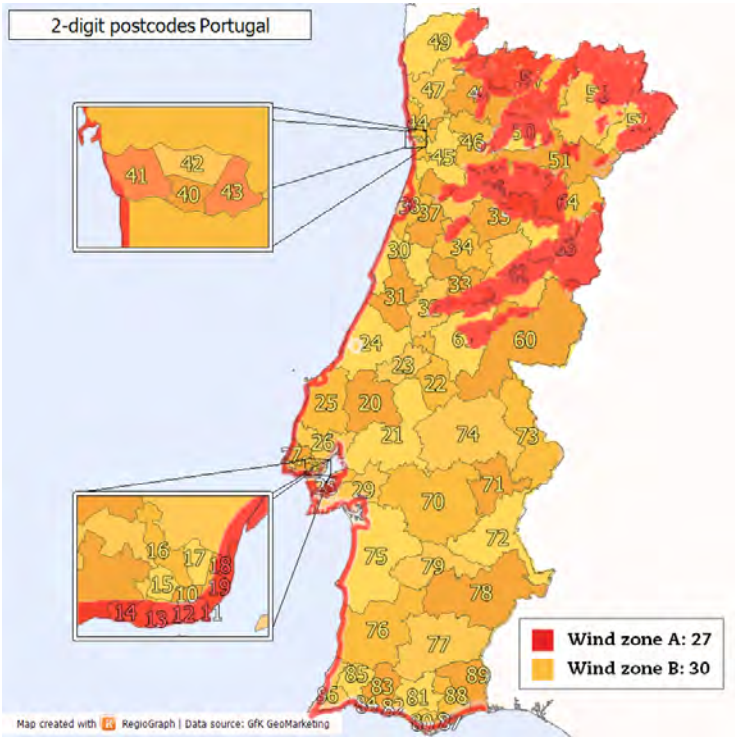
Note 1: The extra ballast must be equally divided over the ballast foundations.
Note 2: The max. of 16 tiles can be placed for extra ballast (144 kg).

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	107,0	123,0	X	X	X	kg
	12,0	14,0	X	X	X	tiles
30 m/s	X	X	X	X	X	kg
	X	X	X	X	X	tiles

Panel: maximum dimensions 2100x1100 mm (24 kg)

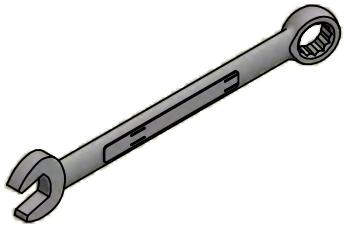
Building height	0 - 5 meter	5 - 7 meter	7 - 9 meter	9 - 12 meter	12 - 15 meter	
27 m/s	141,0	X	X	X	X	kg
	16,0	X	X	X	X	tiles
30 m/s	X	X	X	X	X	kg
	X	X	X	X	X	tiles

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

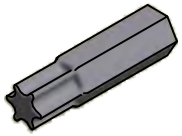
ValkDouble

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



Wrench 13

Socket 13

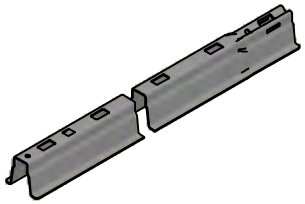


Torx bit T-30

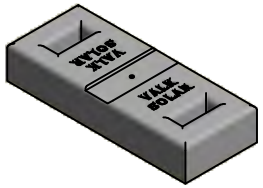
Measuring tape

Required materials

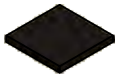
ValkDouble



Roof carrier profile (741801600)
Installation: Page 01



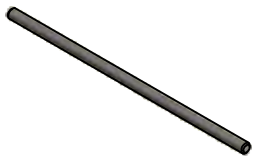
Concrete mass block (750520)
Installation: Page 01



Rubber tile carrier (729610)
Installation: Page 01

SS bolt M8x65 (774065)
Installation: Page 01

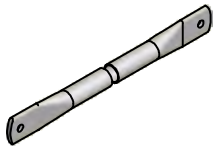
SS washer M8 125A (774009)
Installation: Page 01



Threaded rod M8x220 (747974)
Installation: Page 01

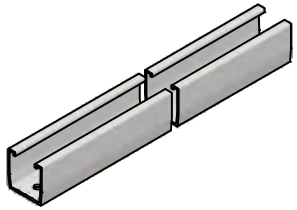
SS flange nut M8 (774006)
Installation: Page 01/03/04/05/06

A-frame connector (724420)
Installation: Page 02

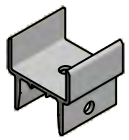


Alu. support (G13032208250000)
Installation: Page 03

Hammerheadbolt M8x20 (774220)
Installation: Page 03



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

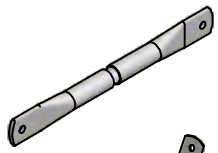


Alu. hinge 50mm (724450)
Installation: Page 04

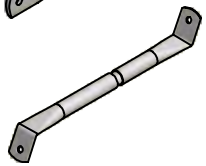
A-frame connector (724414)
Installation: Page 04

SS bolt M8x20 (774020)
Installation: Page 04

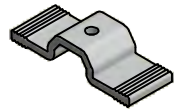
SS bolt M8x80 (774081)
Installation: Page 04



Alu. support (G13057703500000)
Installation: Page 05



Alu. support (G13032208506565)
Installation: Page 05



Alu. tile clamp (725140)
Installation: Page 06

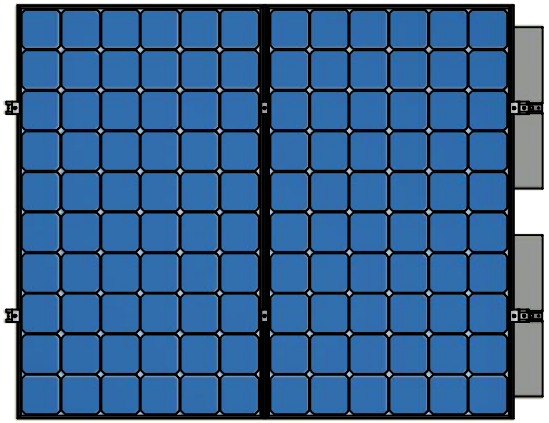
Ballast tile (7506303045)
Installation: Page 06

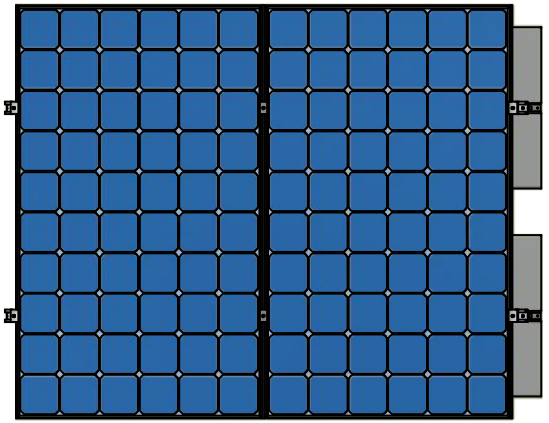
End clamp (721552)
Installation: Page 07

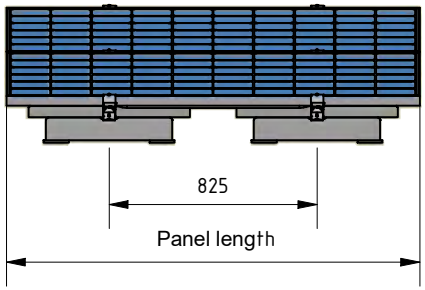
Panel clamp (721550)
Installation: Page 08

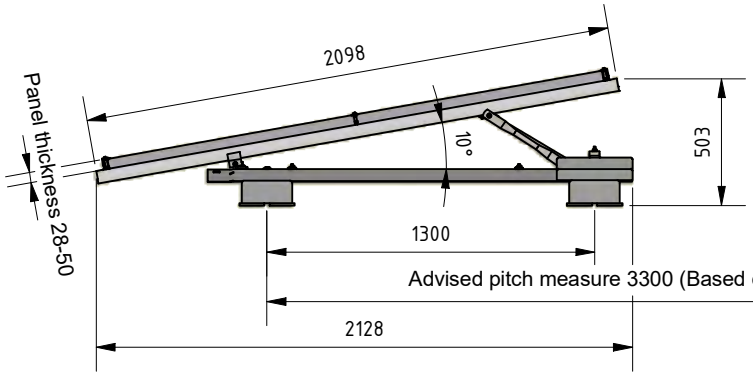
Cable clamp (732001)
Installation: Page 09

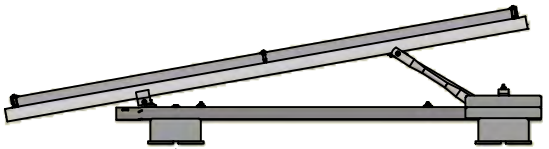
VAN DER VALK
SOLAR SYSTEMS







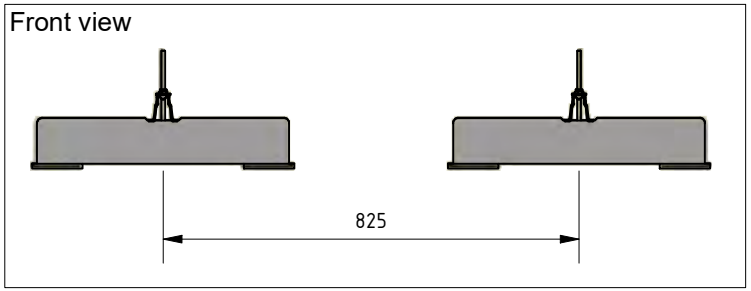


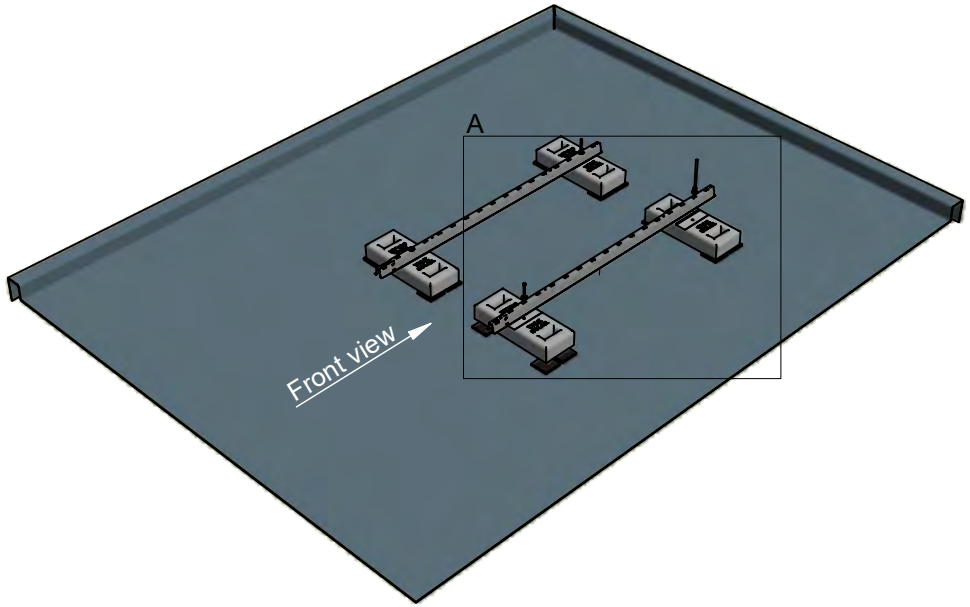


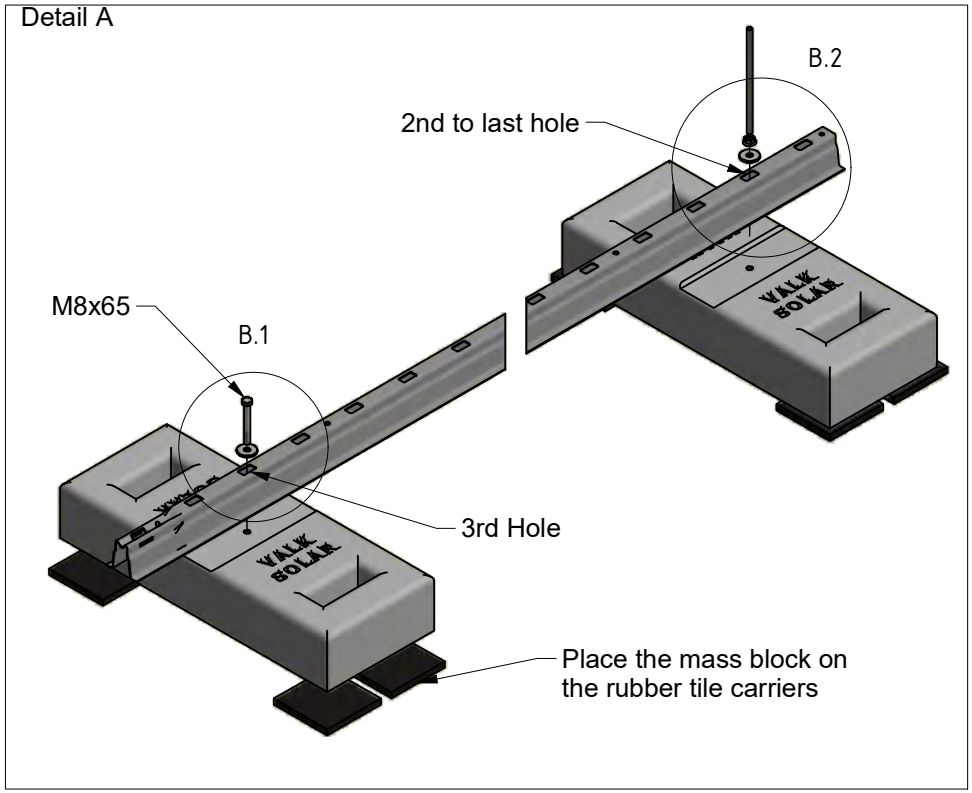
Valk Hint!

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

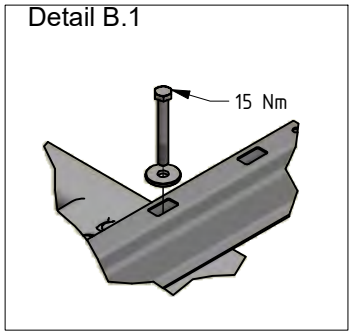
VAN DER VALK SOLAR SYSTEMS

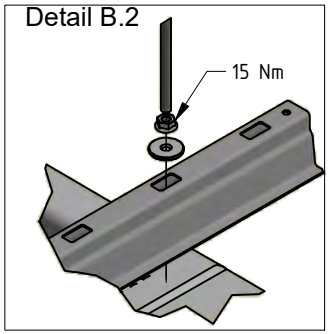




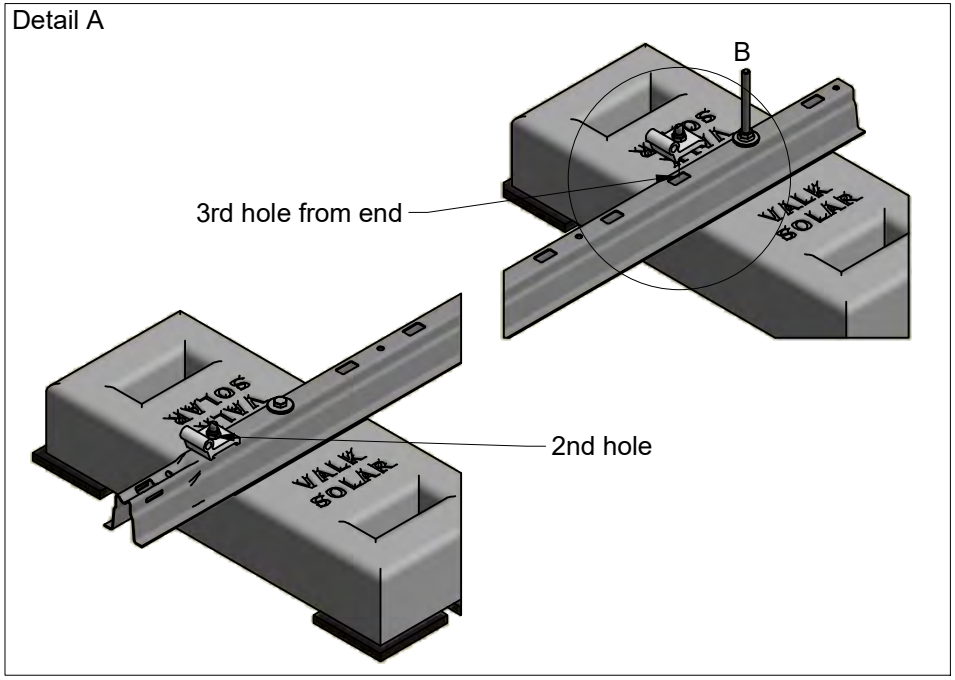


Mount the mass blocks to the roof carriers in the correct positions.

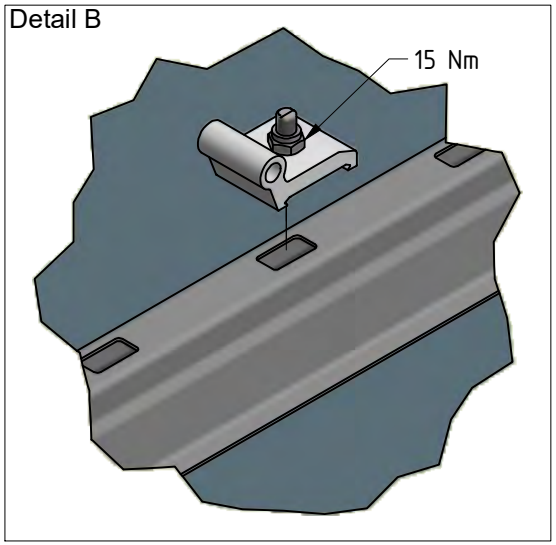




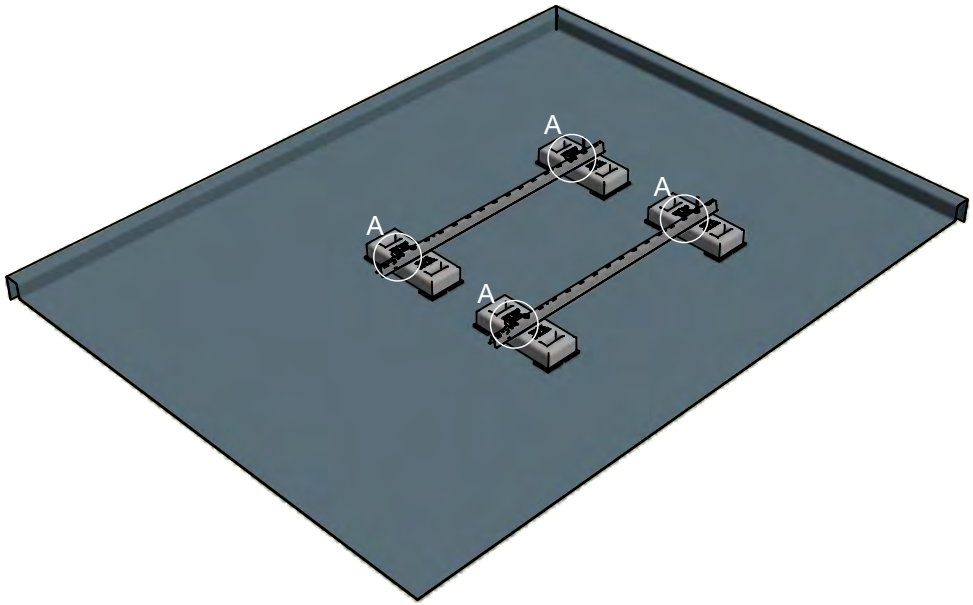
Detail A

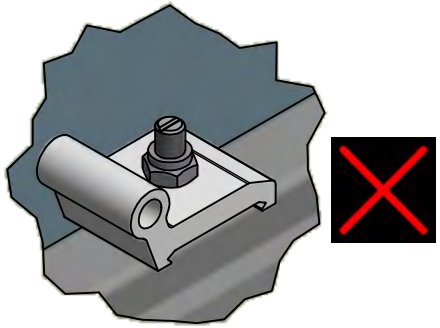


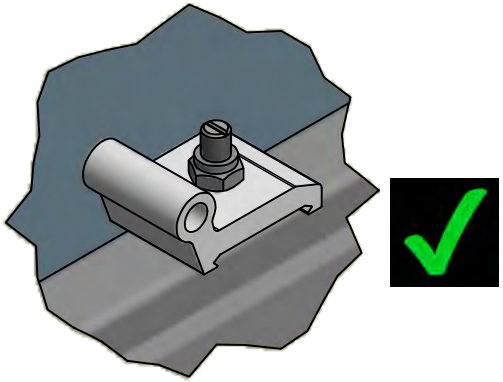
Detail B



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

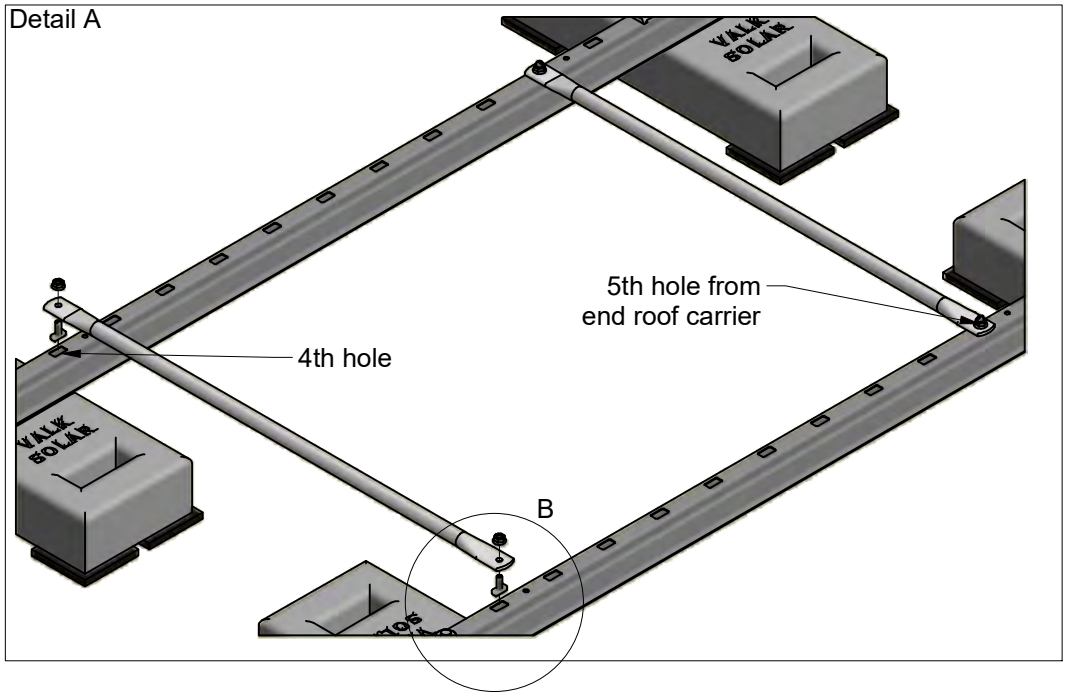




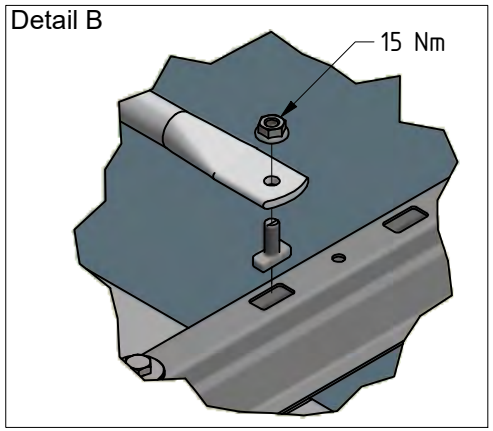


The groove on the bolt corresponds with the orientation of the bolt head!

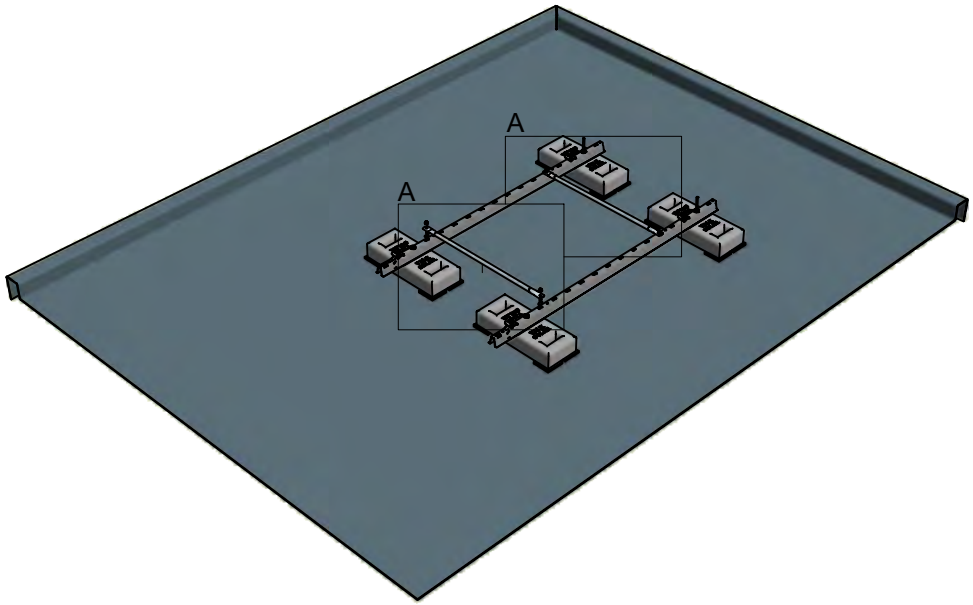
Detail A

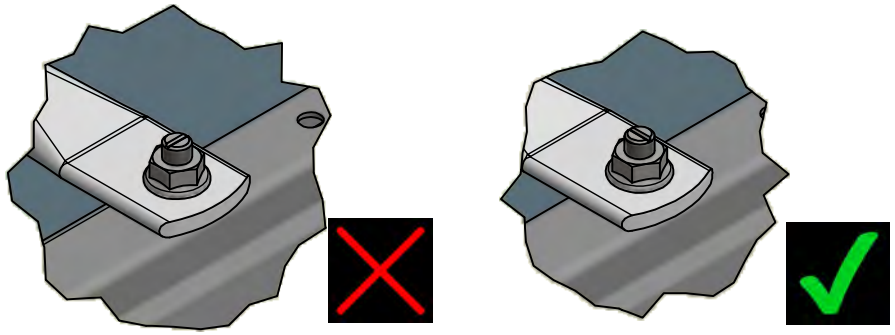


Detail B



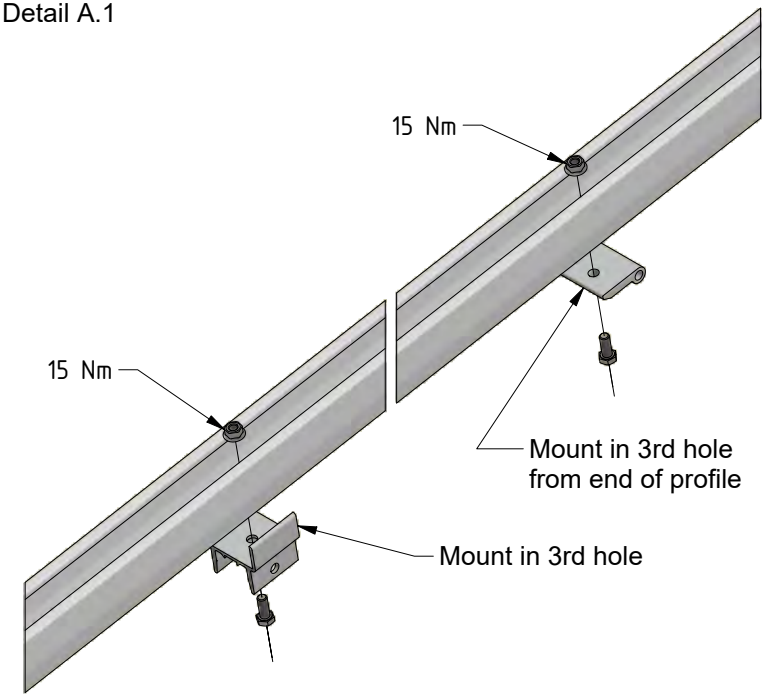
Mount the push rods on the roof carriers to connect the two rows.





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

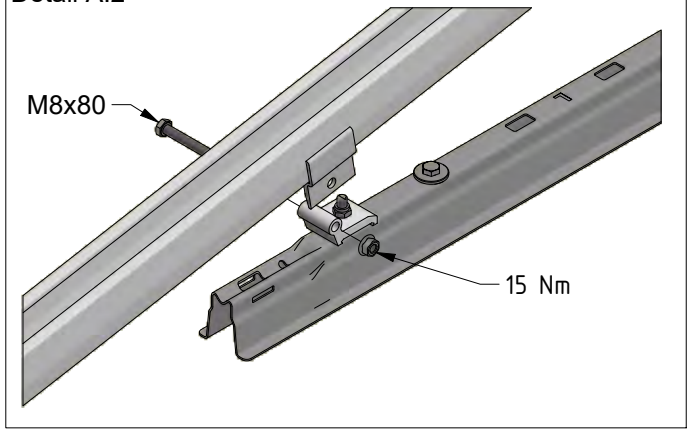
Detail A.1

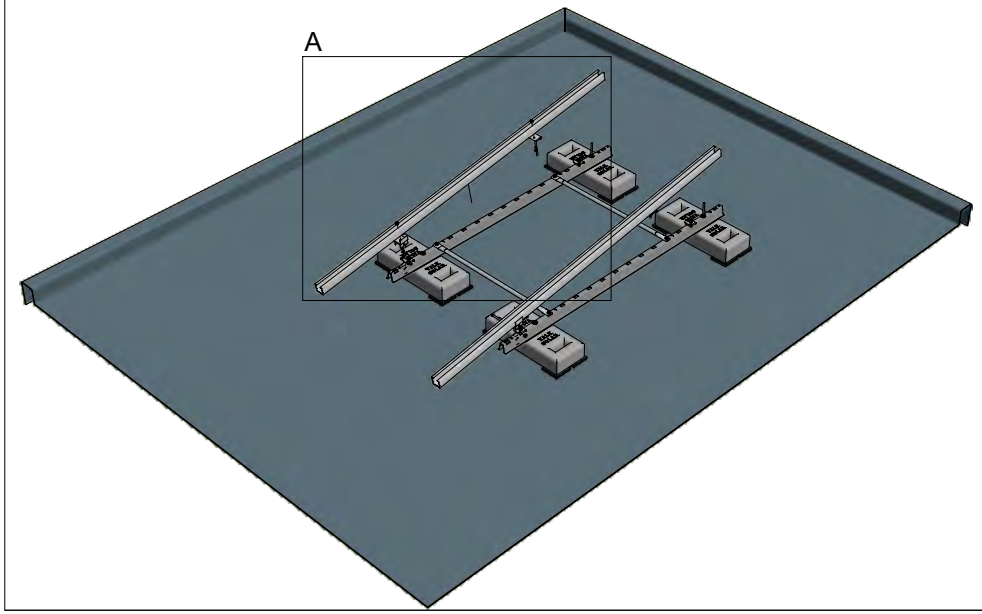


ValkHint!!

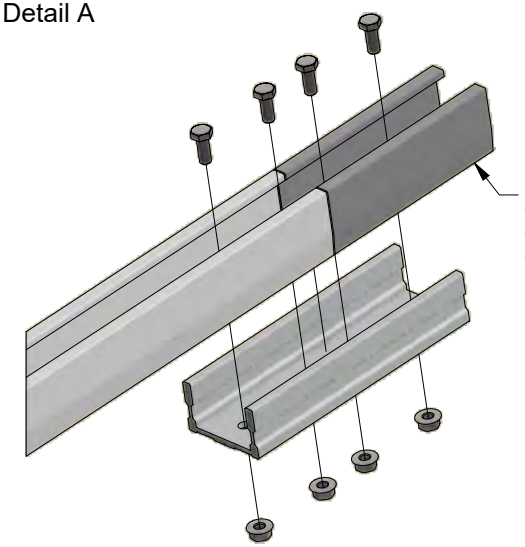
Create the Aluminium profile with the connector pieces first.
Then mount the profile to the roof carrier.

Detail A.2



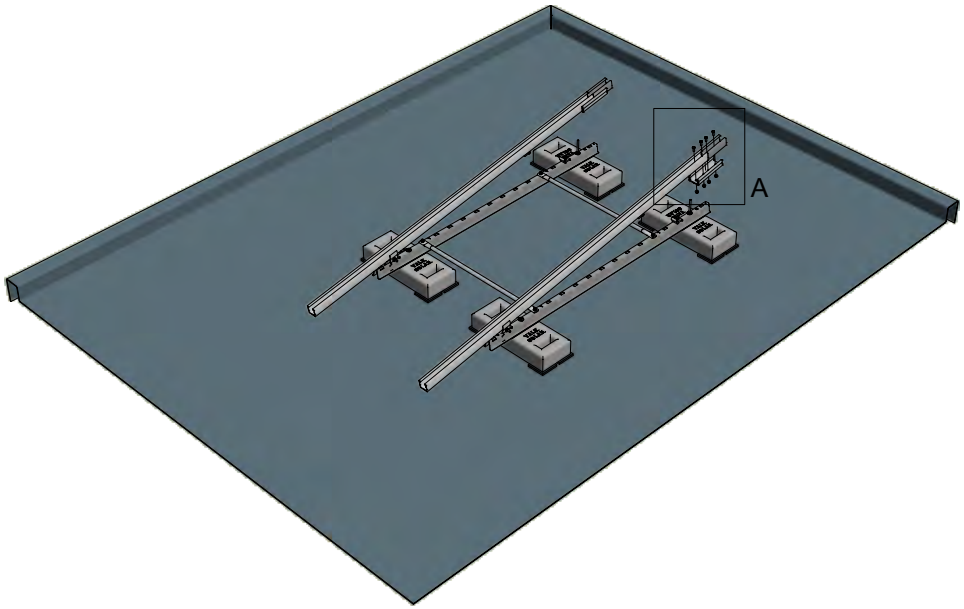


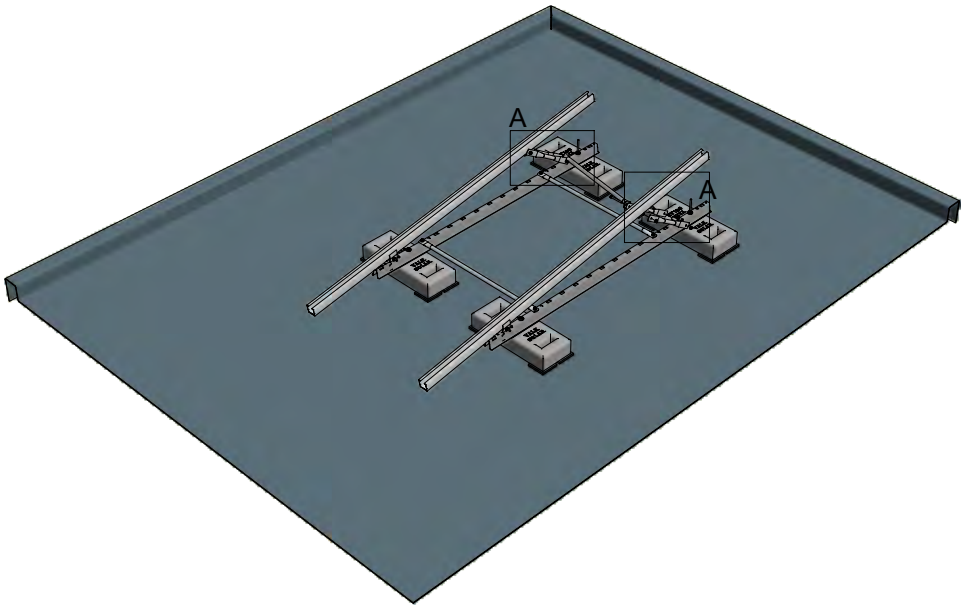
Detail A



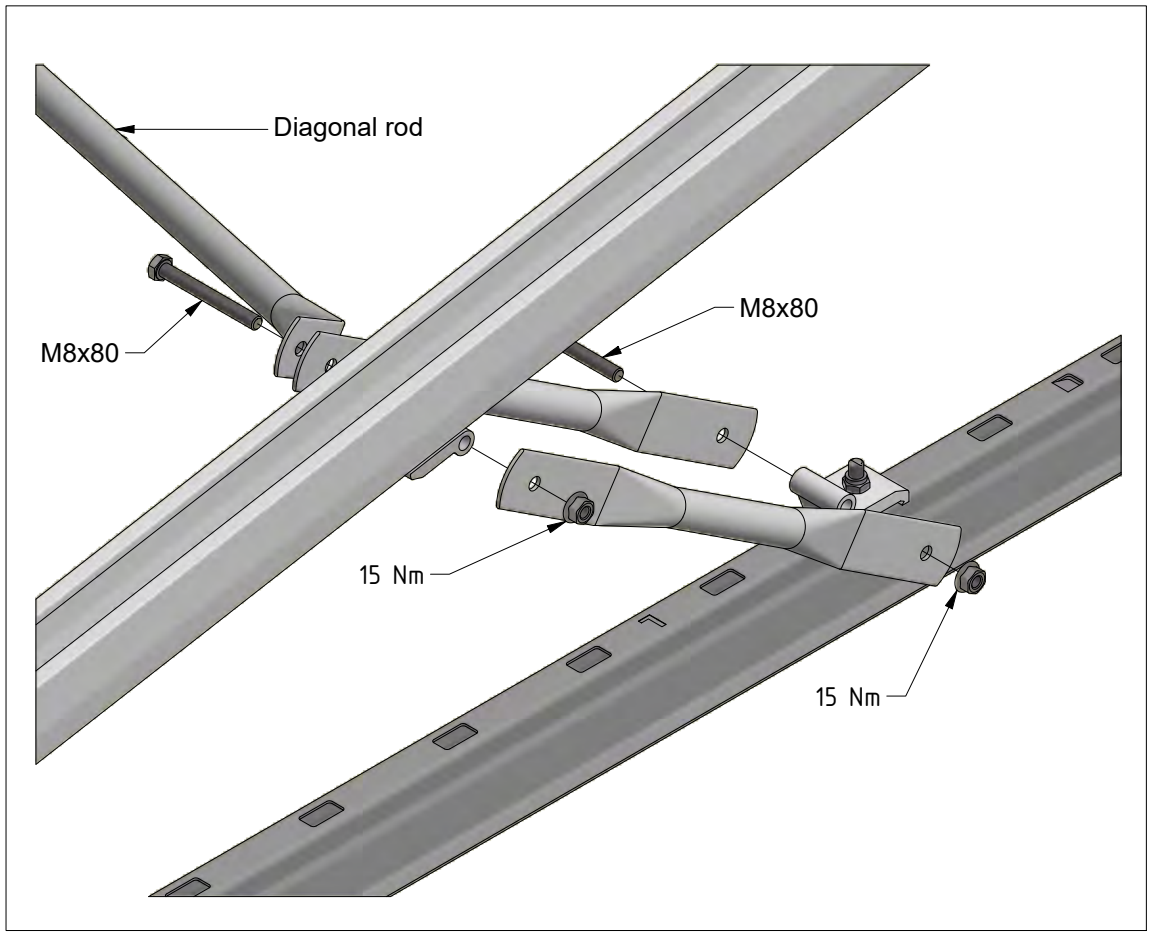
Extension piece (for panel width)
757050 = 1010-1046 mm
757051 = 1038-1065 mm
757052 = 1065-1134 mm

Side view



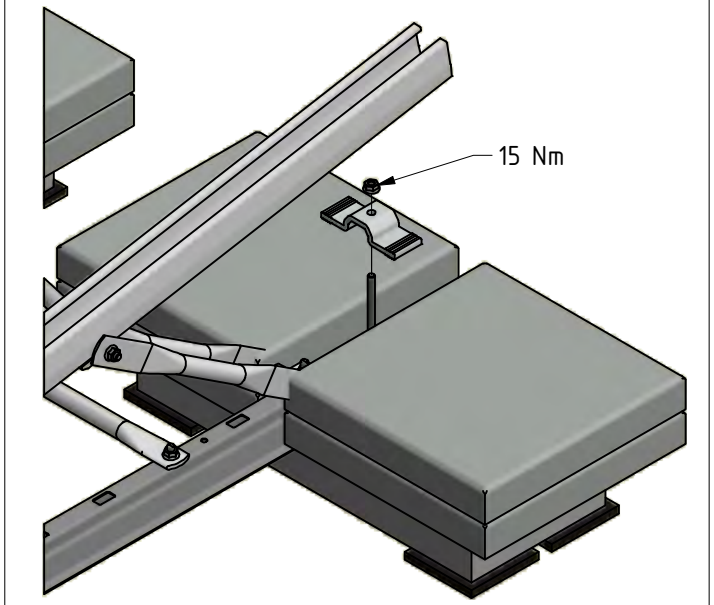


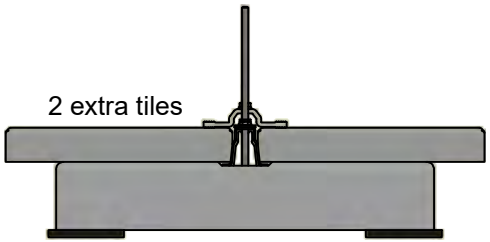
Detail A

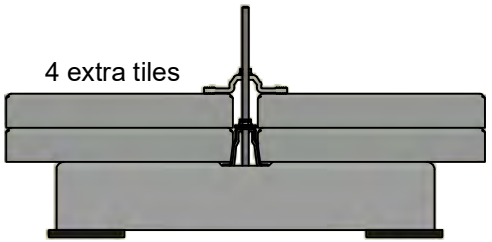


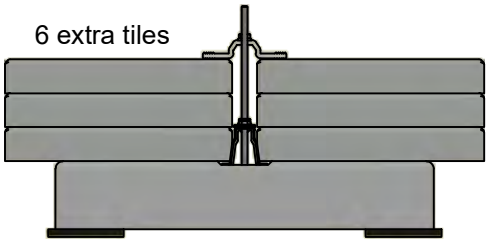
Mount the push rods to the aluminium profile and the roof carriers.

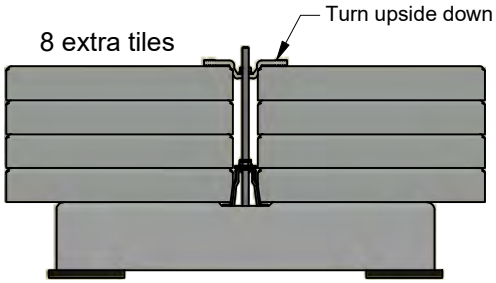
Detail A

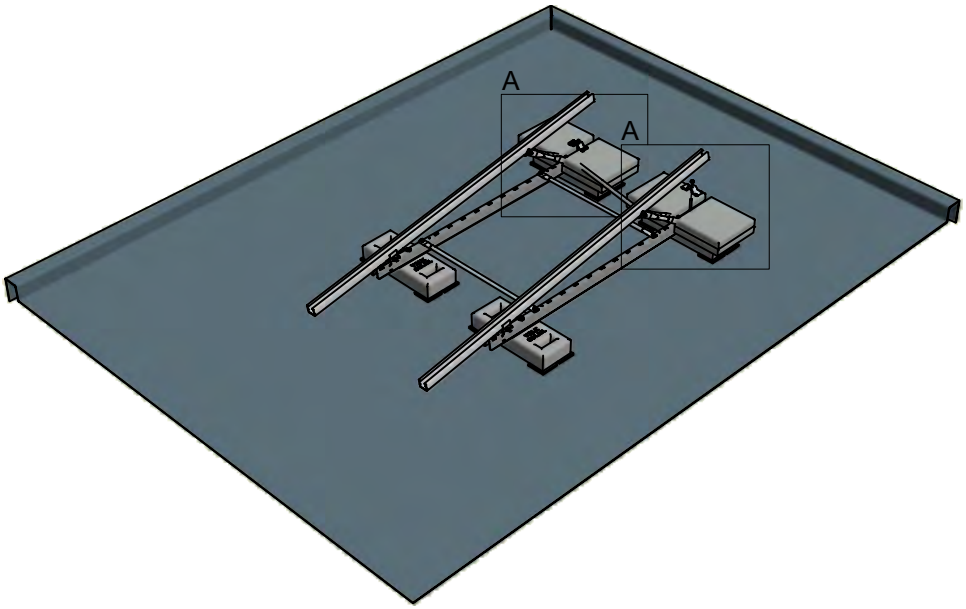






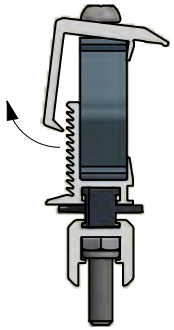






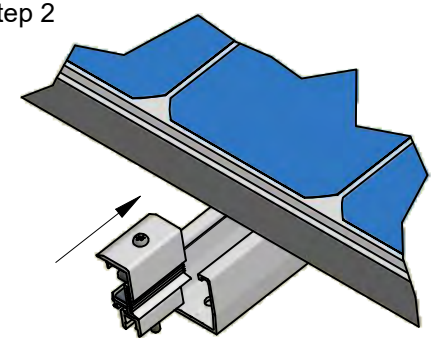
For the required number of tiles check the ballast tables in front of this manual.

Step 1

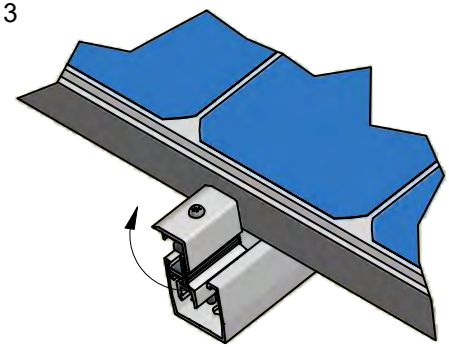


Take the end clamp out of it's slot for an easier assembly.

Step 2

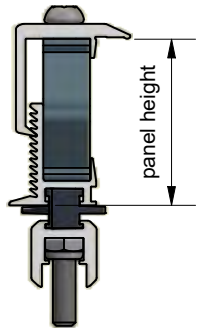


Step 3

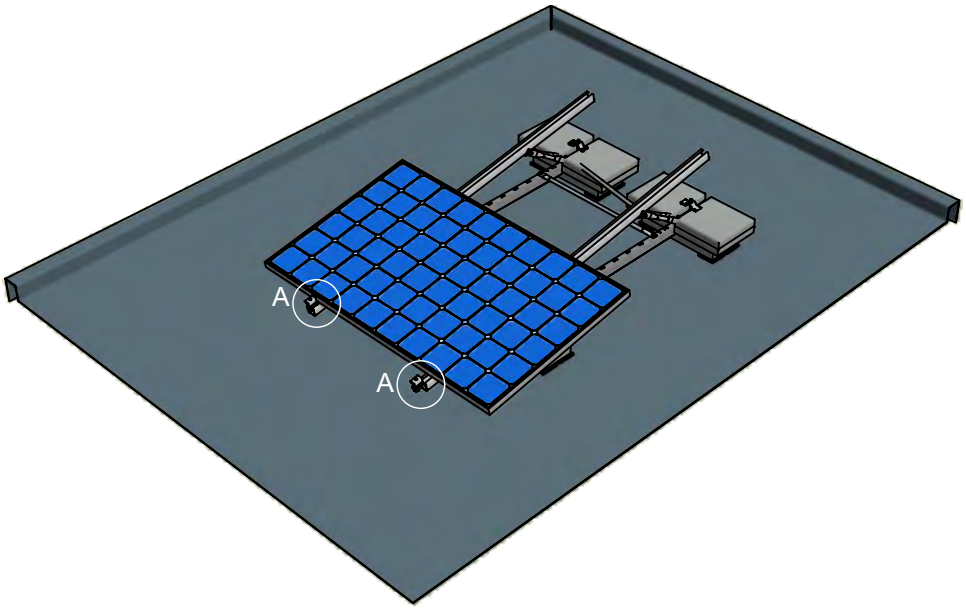


The end clamp can only be turned clockwise, so make sure the end clamp is placed the right way.

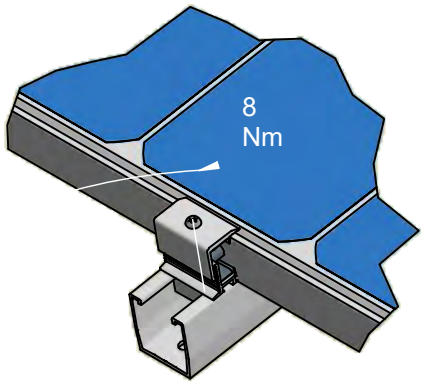
Step 4

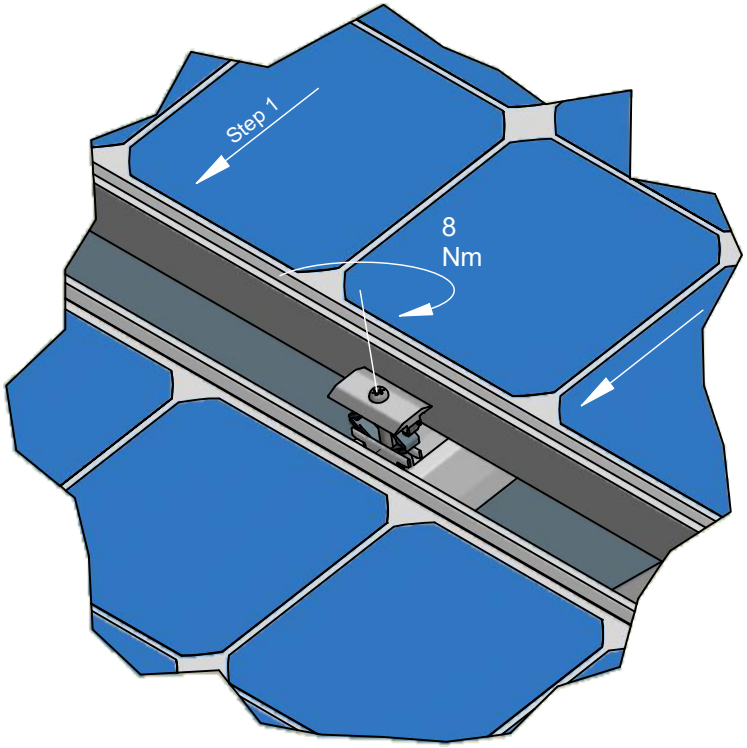


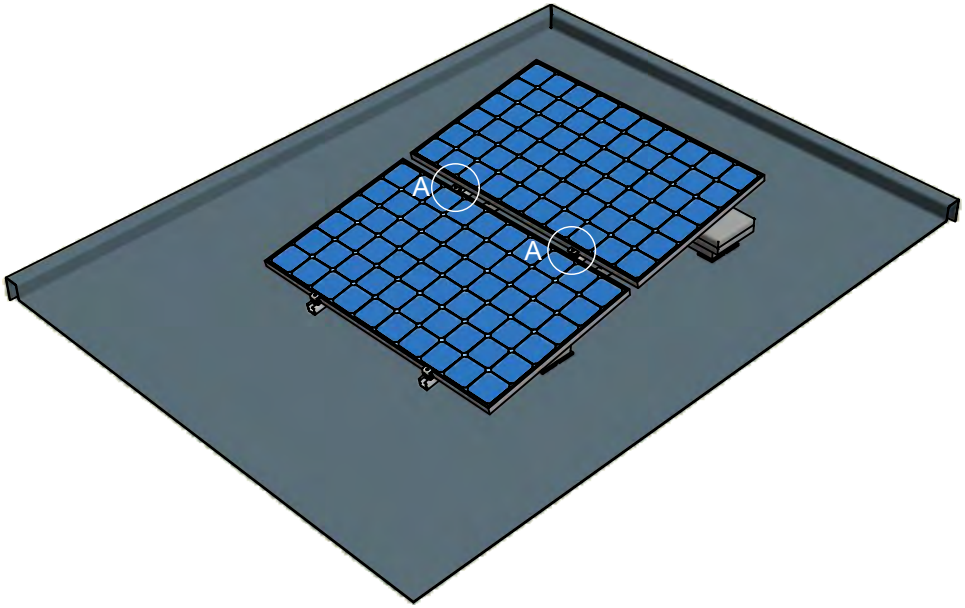
Put the end clamp in the right slot to continue the assembly.



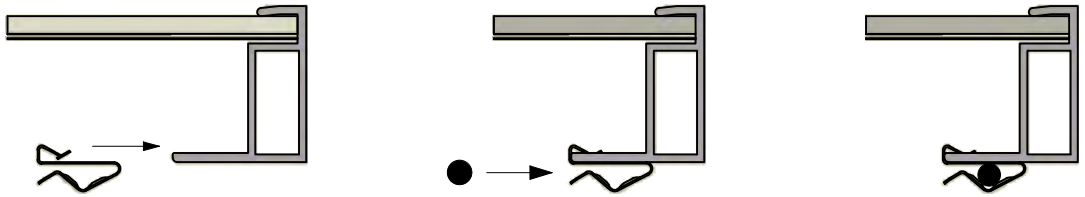
Step 5







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



Mount cable clamp on the panel.