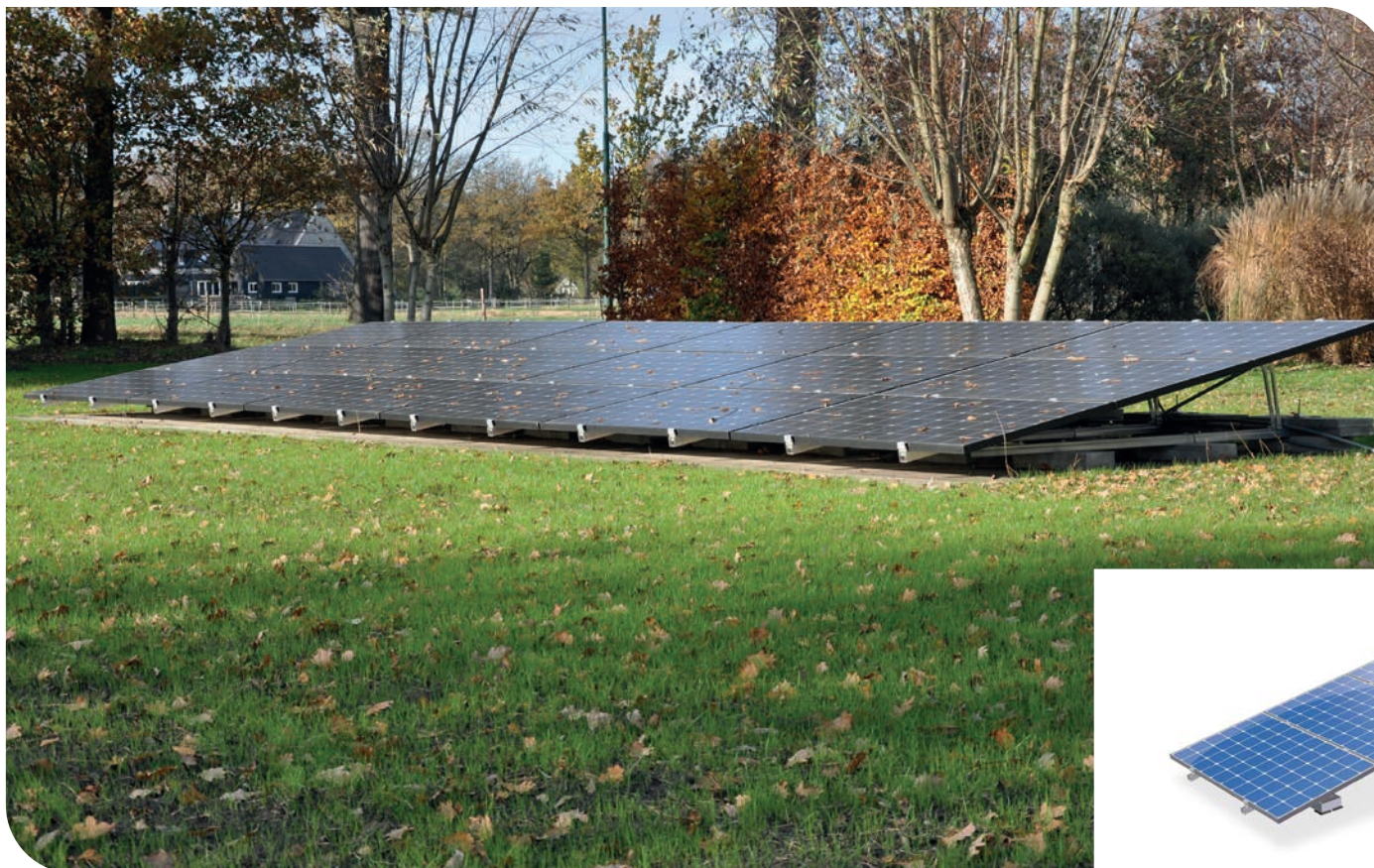


Installation manual ValkTriple



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

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

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;

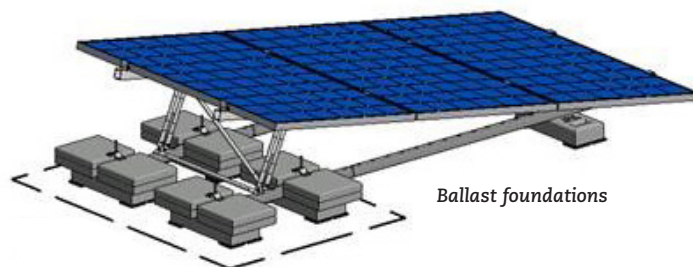
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

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

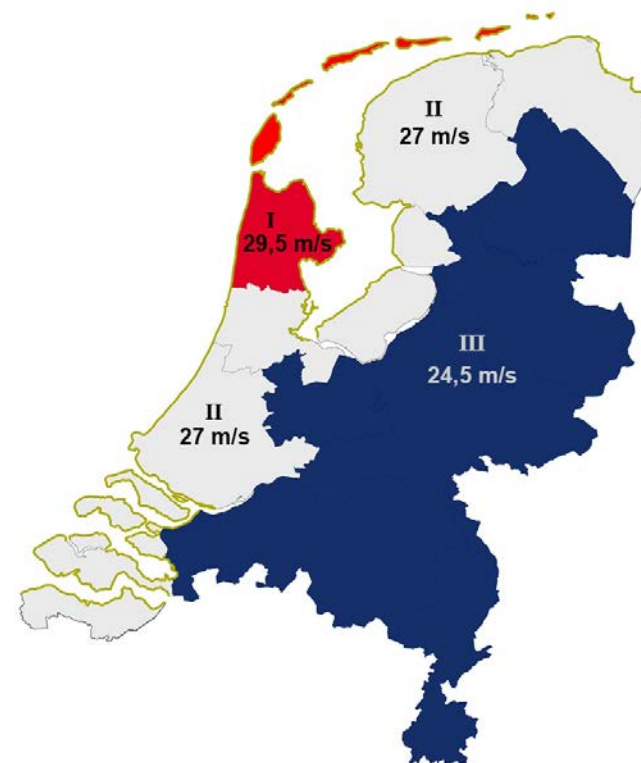
Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

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 2300x1150 mm (30kg)

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;

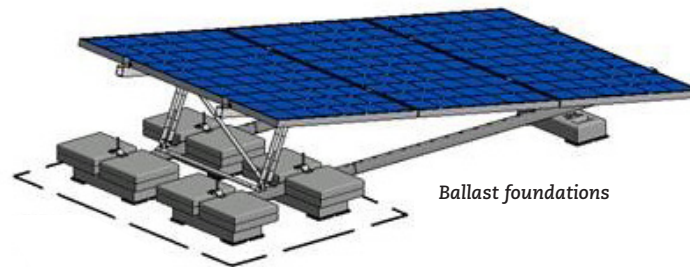
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

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

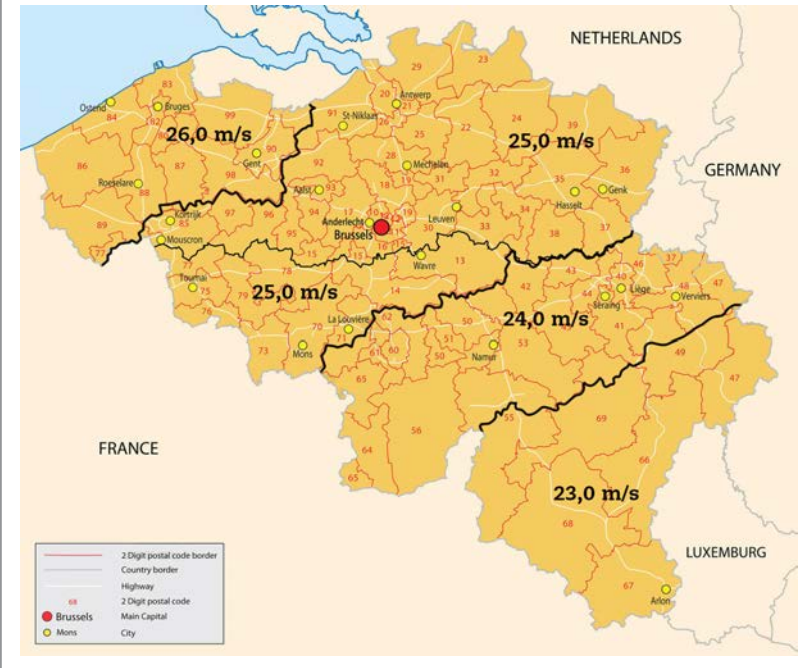
Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

Environmental factors

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



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 2300x1150 mm (30kg)

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;

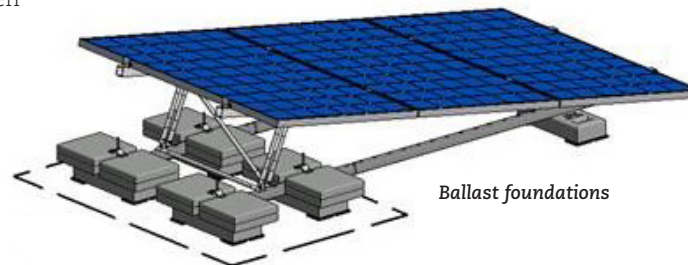
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

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

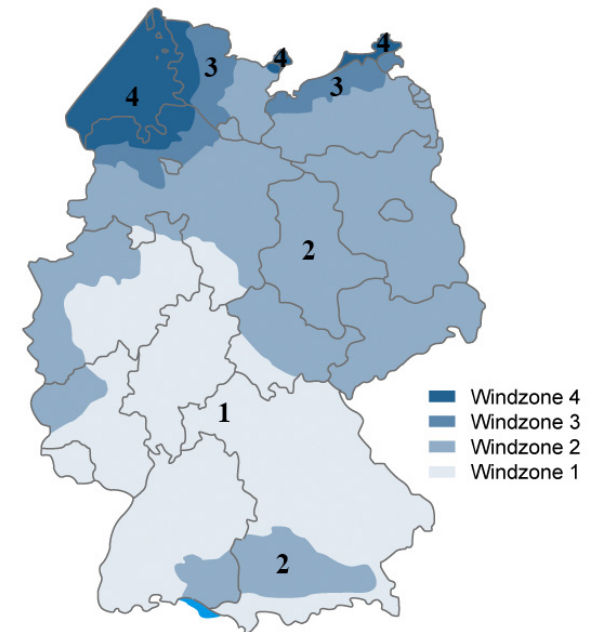
Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

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 2300x1150 mm (30kg)

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;

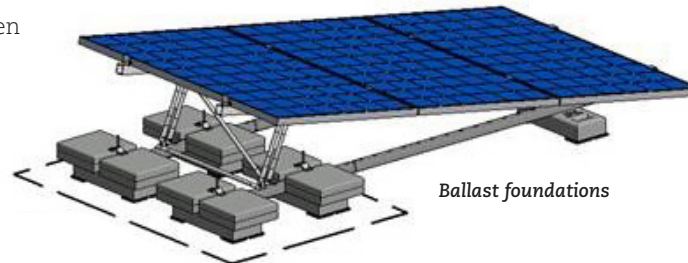
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

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	Built environment
Height above sea level	50 m
Distance to coast line	5 km
Distance to city border	5 km
Roof materials	Bitumen



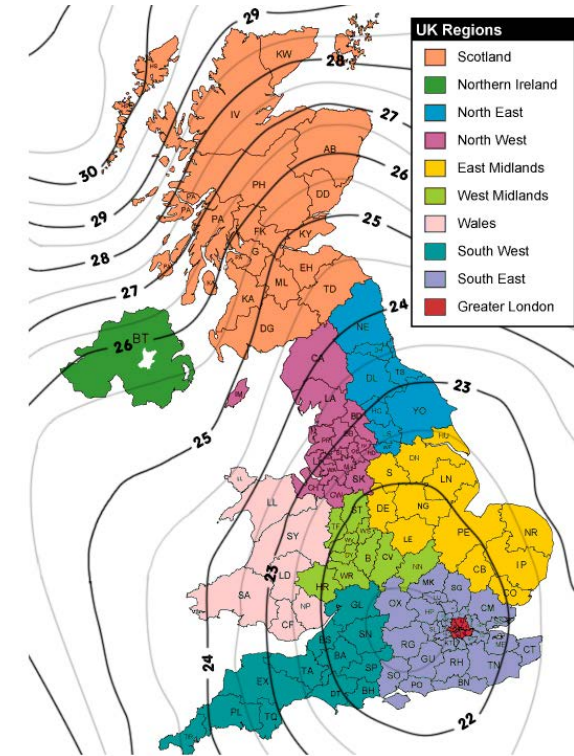
Panel: maximum dimensions 1800x1100 mm (21 kg)

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

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



Panel: maximum dimensions 2300x1150 mm (30kg)

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

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;

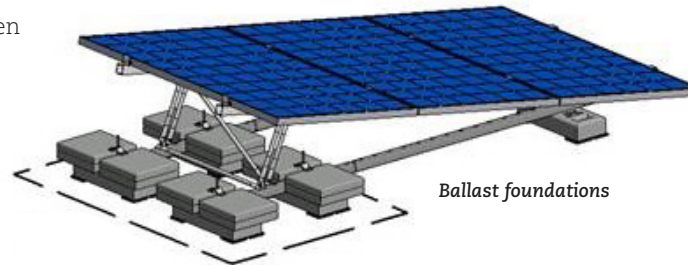
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

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

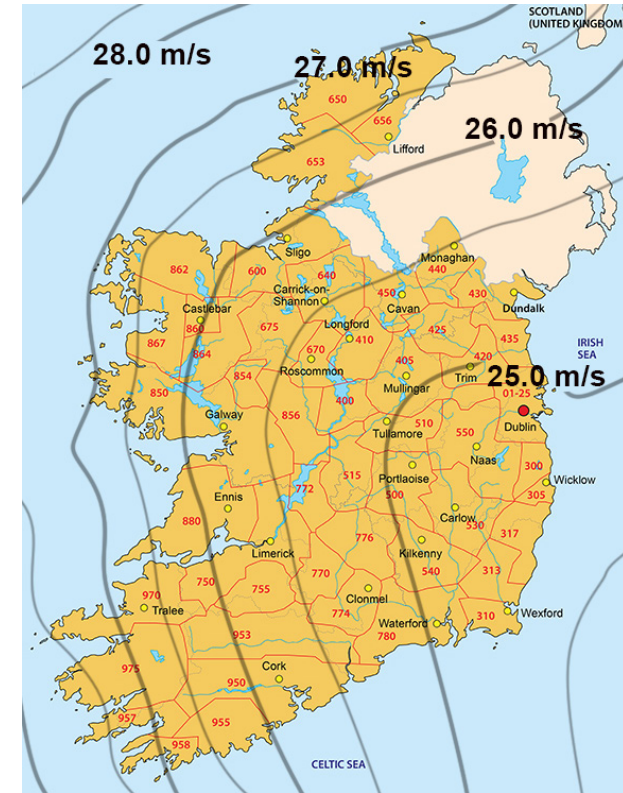
Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

Environmental factors

Position	Middle zone roof
Terrain category	Builted 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 2300x1150 mm (30kg)

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;

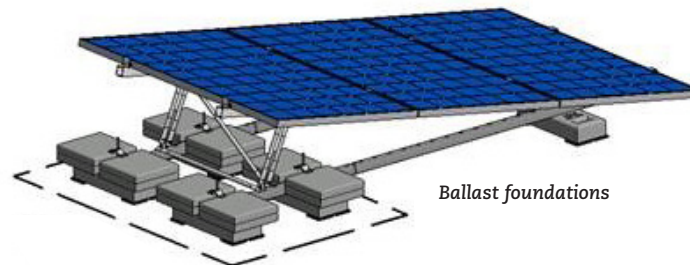
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

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

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.

Panel: maximum dimensions 2300x1150 mm (30kg)

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

Wind area | Norway

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

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;

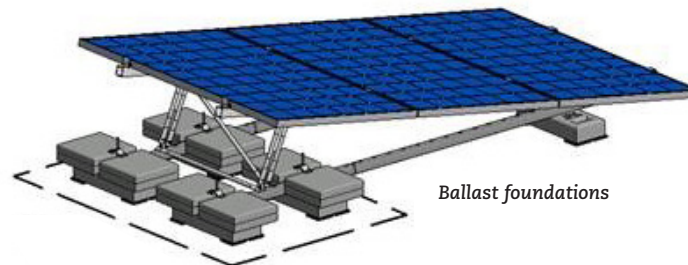
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

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

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 Sweden



Panel: maximum dimensions 2300x1150 mm (30kg)

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

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;

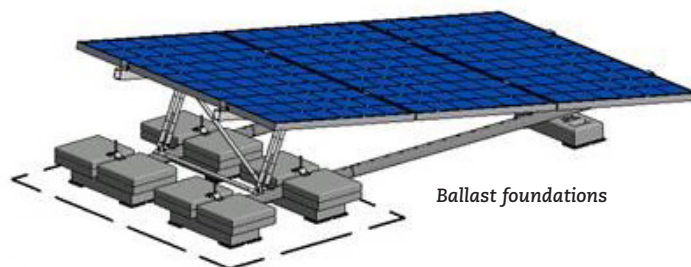
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

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



Ballast foundations

Windmap Finland

- Mainland across the country = 21 m/s
- Sea areas:
Open sea, scattered islands on open sea = 22 m/s
- In Lapland: at the **top** of the mountains = 26 m/s
- In Lapland: 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	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 2300x1150 mm (30kg)

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;

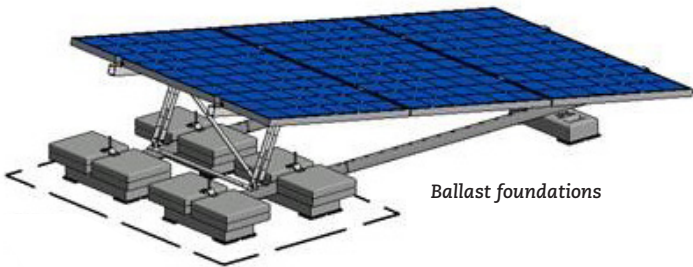
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

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 2300x1150 mm (30kg)

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;

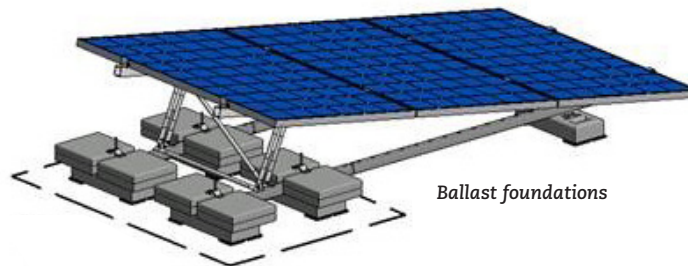
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

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

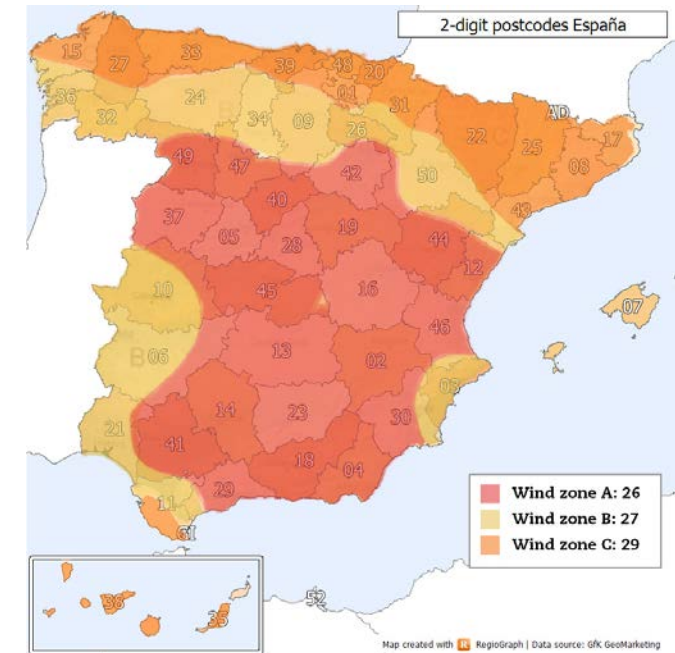
Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

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 2300x1150 mm (30kg)

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;

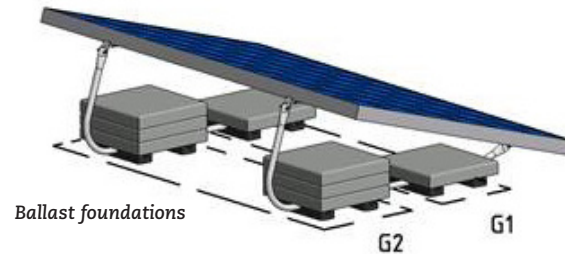
- determine the wind area on the windmap
- choose the wind area and building height in the table
- you can now read the number of tiles / kg

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

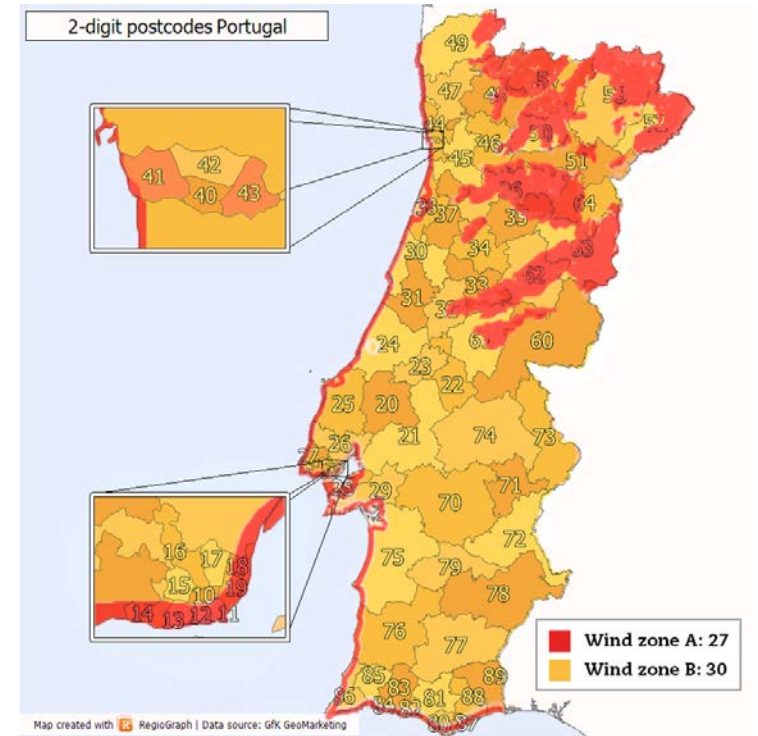
Note 2: The max. of 32 tiles can be placed for extra ballast (288 kg).

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 2300x1150 mm (30kg)

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.

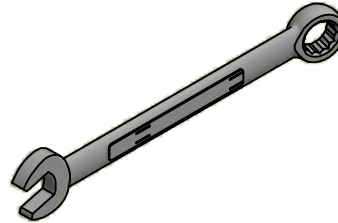
* If you use tiles of different sizes and thus another weight, you need to adjust the number of tiles to get the right weight.

Recommended installation tools

ValkTriple



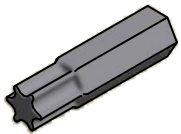
Cordless drill
(for socket 13 and bit T-30)



Wrench 13



Socket 13



Torx bit T-30



Measuring tape

Required materials

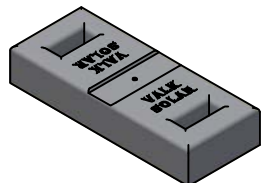
ValkTriple



Roof carrier profile 1000mm (741801000)
Roof carrier profile 2000mm (741802000)
Installation: Page 01



Coupling set (774221)
Installation: Page 01



Concrete mass block (750520)
Installation: Page 01



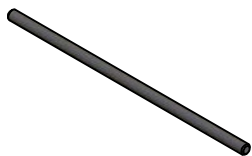
Rubber tile carrier (729610)
Installation: Page 01



SS bolt M8x65 (774065)
Installation: Page 01



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



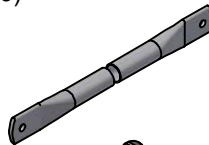
Threaded rod M8x220 (747974)
Installation: Page 01



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



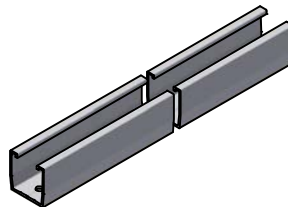
A-frame connector (724420)
Installation: Page 02



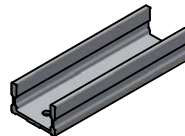
Alu. support (G13032212500000)
Installation: Page 03



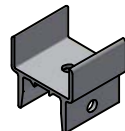
Hammerheadbolt M8x20 (774220)
Installation: Page 03



Alu. profile 2400mm (7272400)
Alu. profile 1175mm (7271175)
Installation: Page 04



Alu. profile coupling (004850)
Installation: Page 04



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



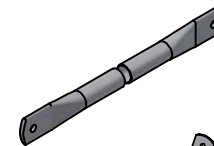
A-frame connector (724414)
Installation: Page 04



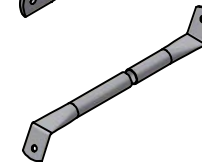
SS bolt M8x20 (774020)
Installation: Page 04



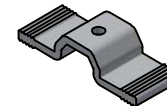
SS bolt M8x80 (774081)
Installation: Page 04



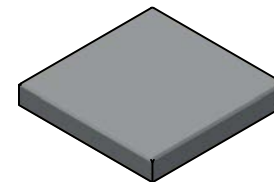
Alu. support (G13057704310000)
Installation: Page 05



Alu. support (G13032212687272)
Installation: Page 05



Alu. tile clamp (725140)
Installation: Page 06



Ballast tile (7506303045)
Installation: Page 06



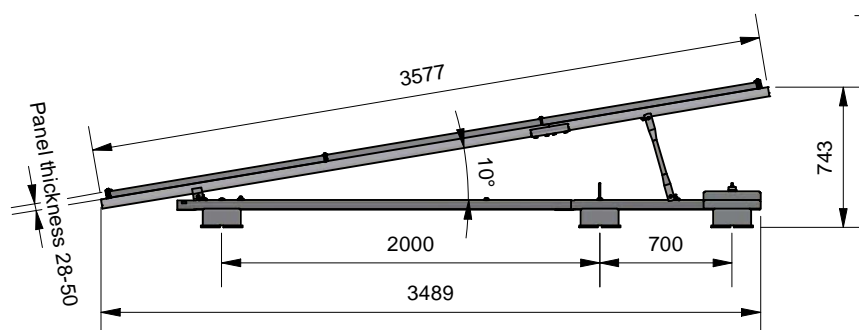
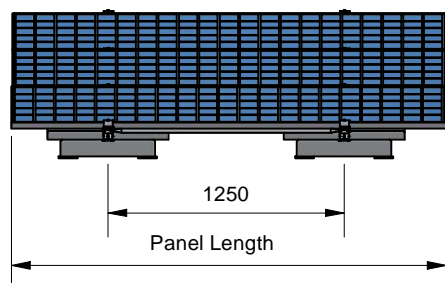
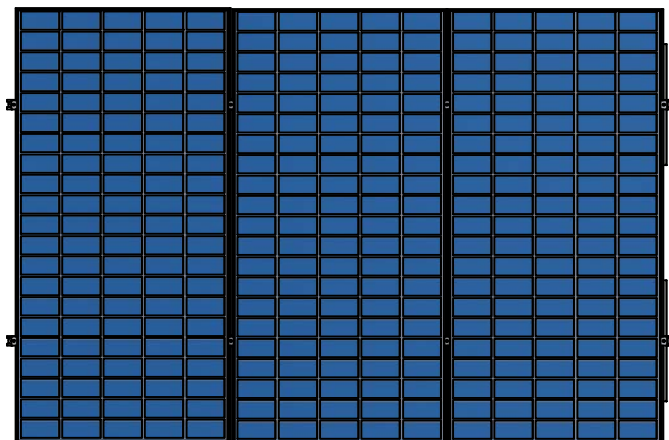
End clamp (721552)
Installation: Page 07



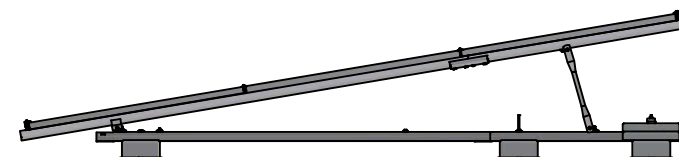
Panel clamp (721550)
Installation: Page 08



Cable clamp (732001)
Installation: Page 09



Advies pitch measure: 6700
(based on sun angle 14,5°)



Valk Hint!

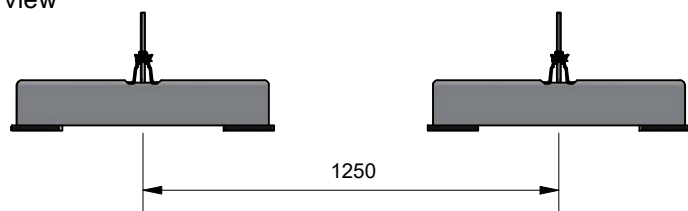
1) Place the mass block on the correct locations before mounting the roof carriers.

VAN DER VALK

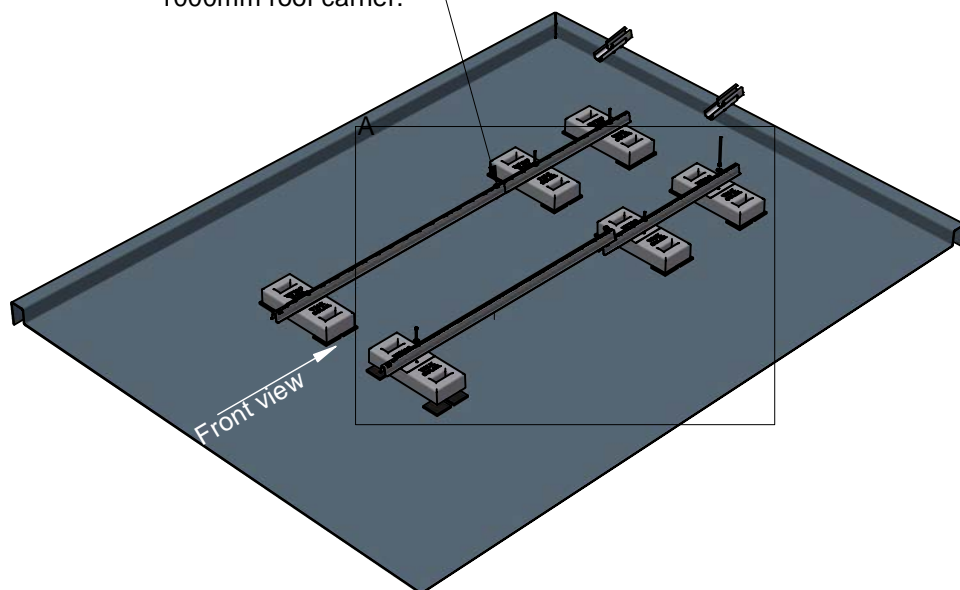


SOLAR SYSTEMS

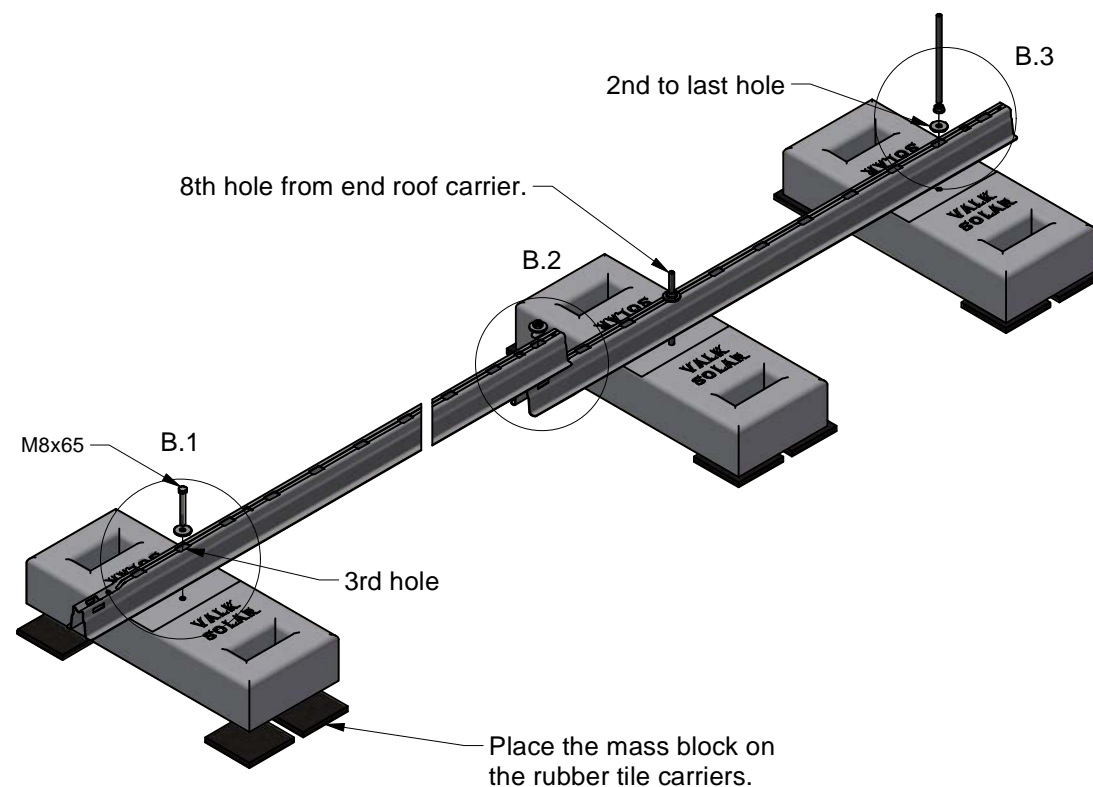
Front view



⚠ Attention! the 2000mm roof carrier is placed in front of the 1000mm roof carrier.

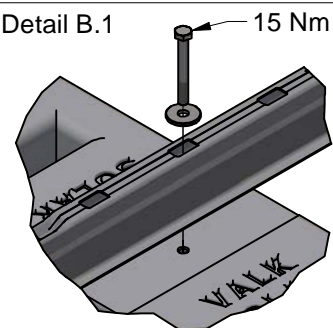


Detail A

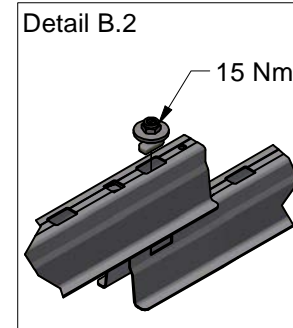


Mount the mass block to the roof carriers in the correct positions.

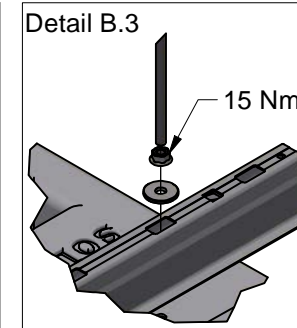
Detail B.1



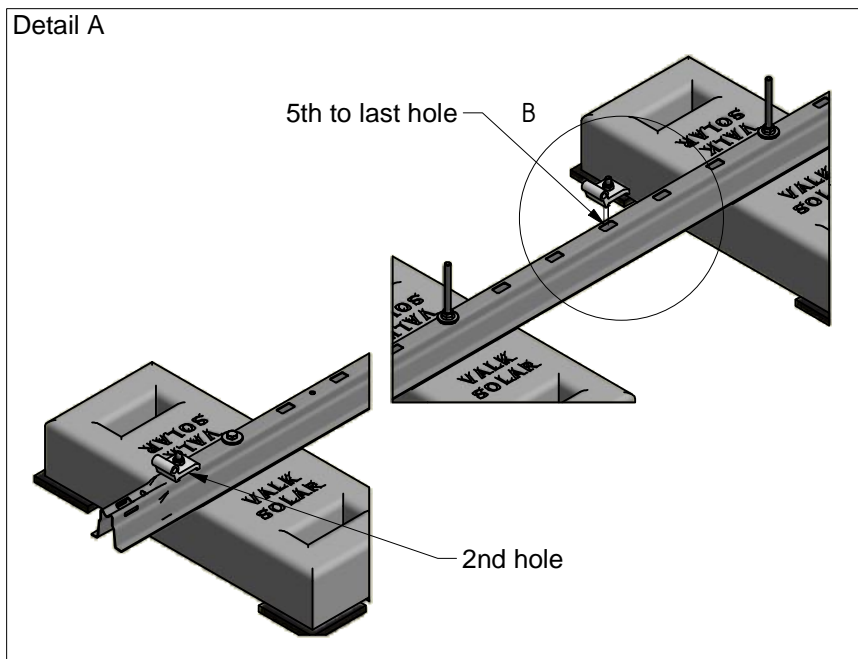
Detail B.2



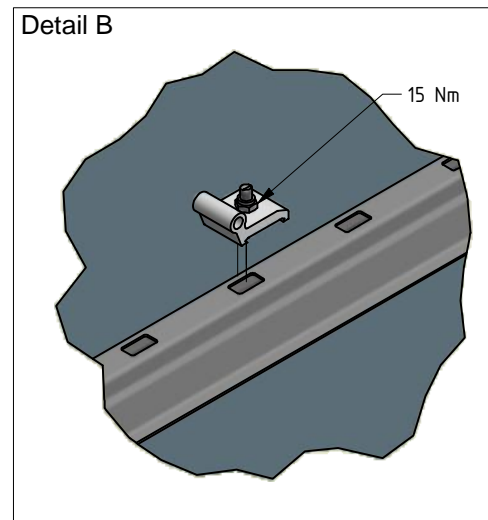
Detail B.3



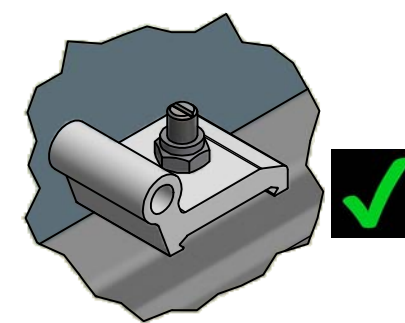
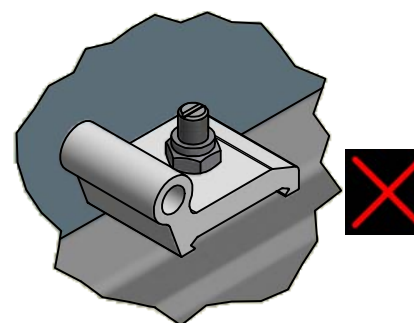
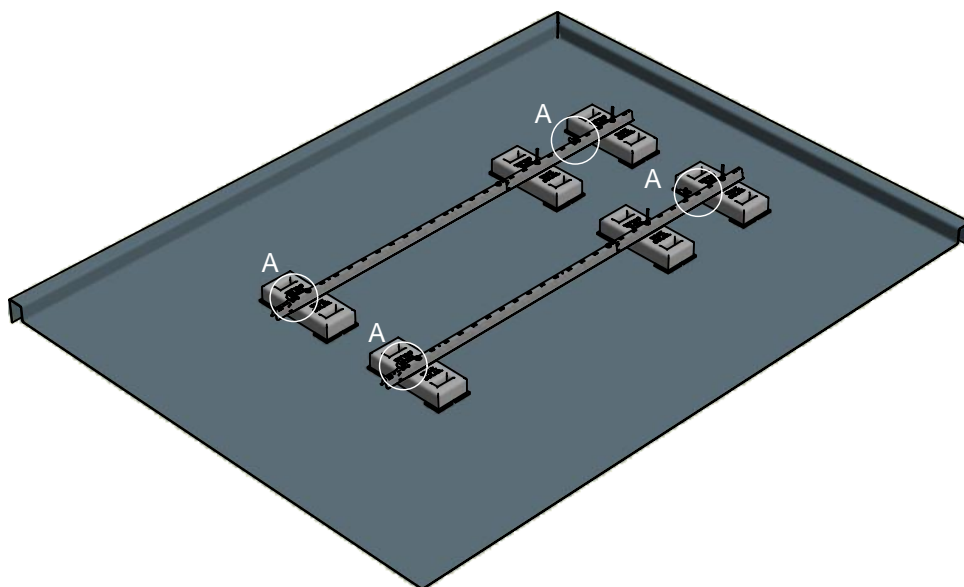
Detail A




Detail B

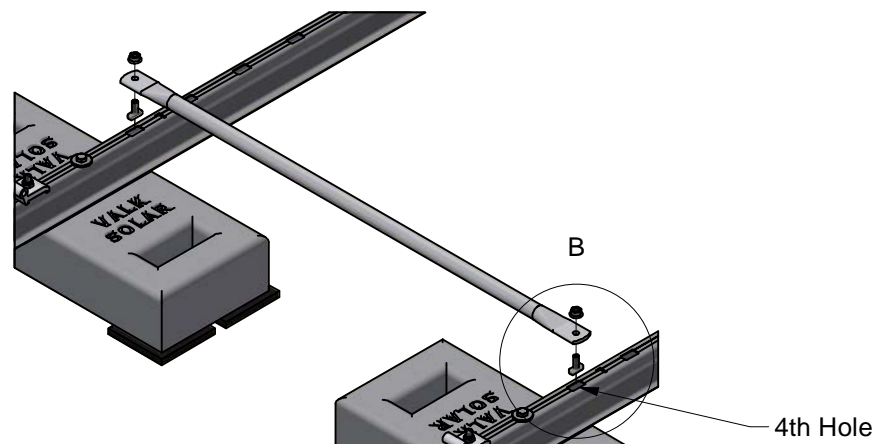


Mount the connector pieces on the roof carriers. Make sure they are placed as shown in the drawing.

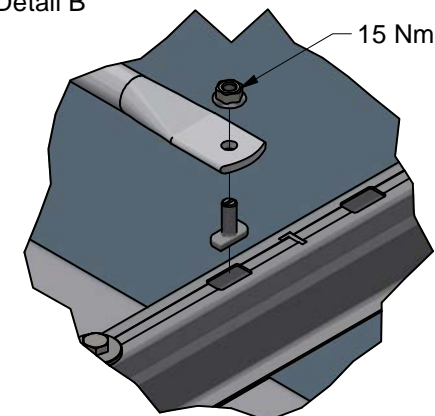


 The groove on the bolt corresponds with the orientation of the bolt head!

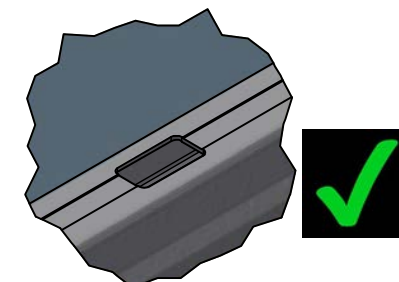
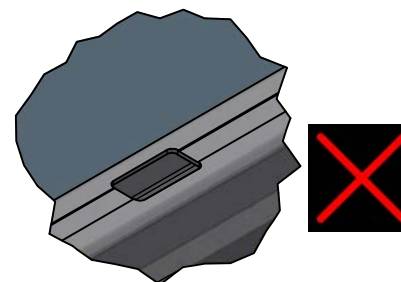
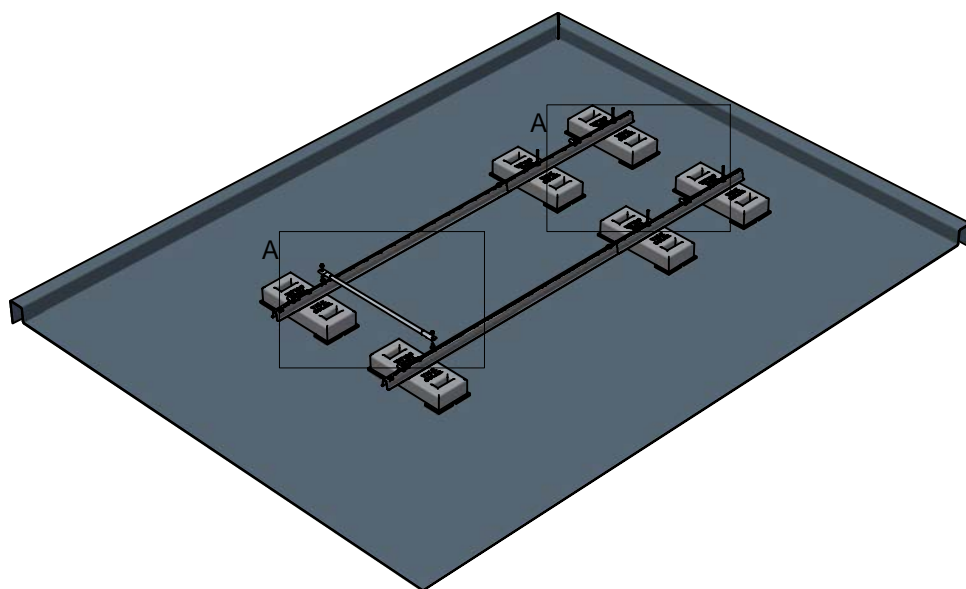
Detail A



Detail B

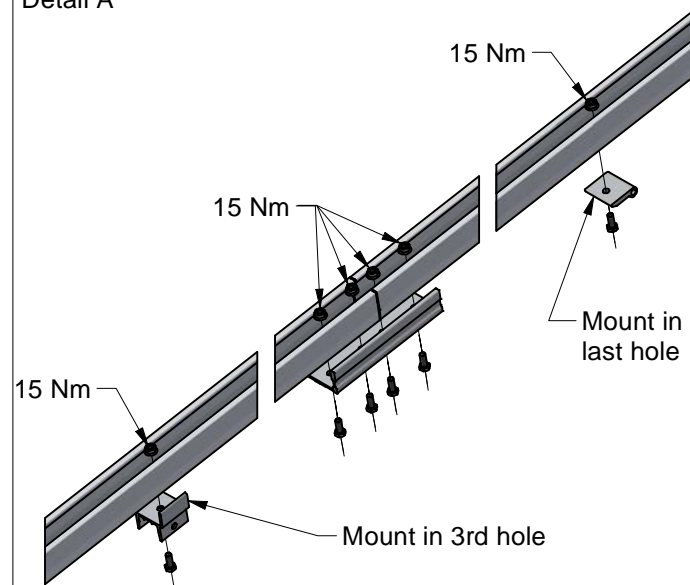


Mount the push rods on the roof carriers to connect the two rows.



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

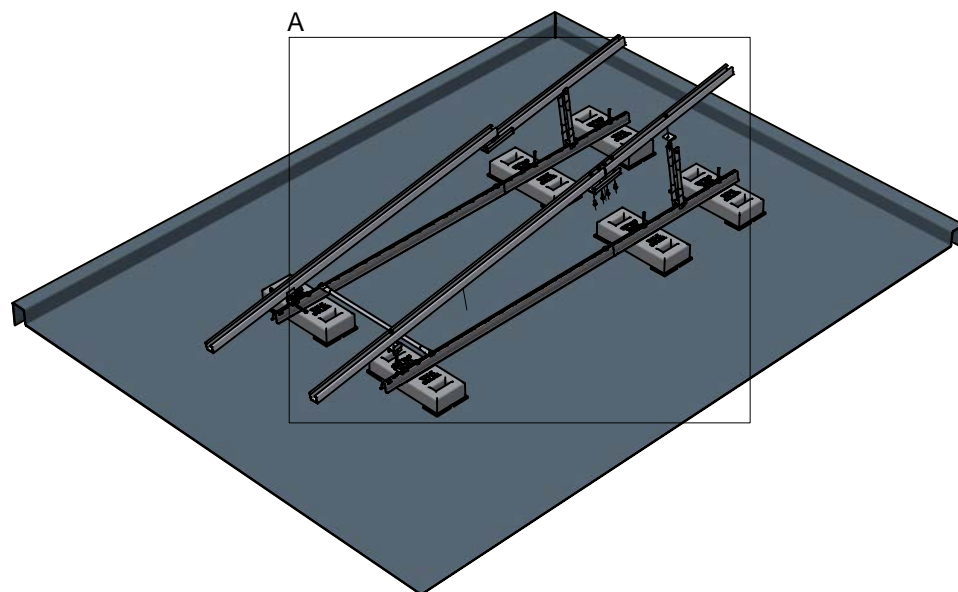
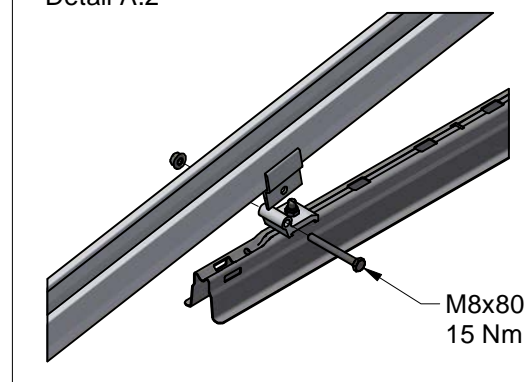
Detail A

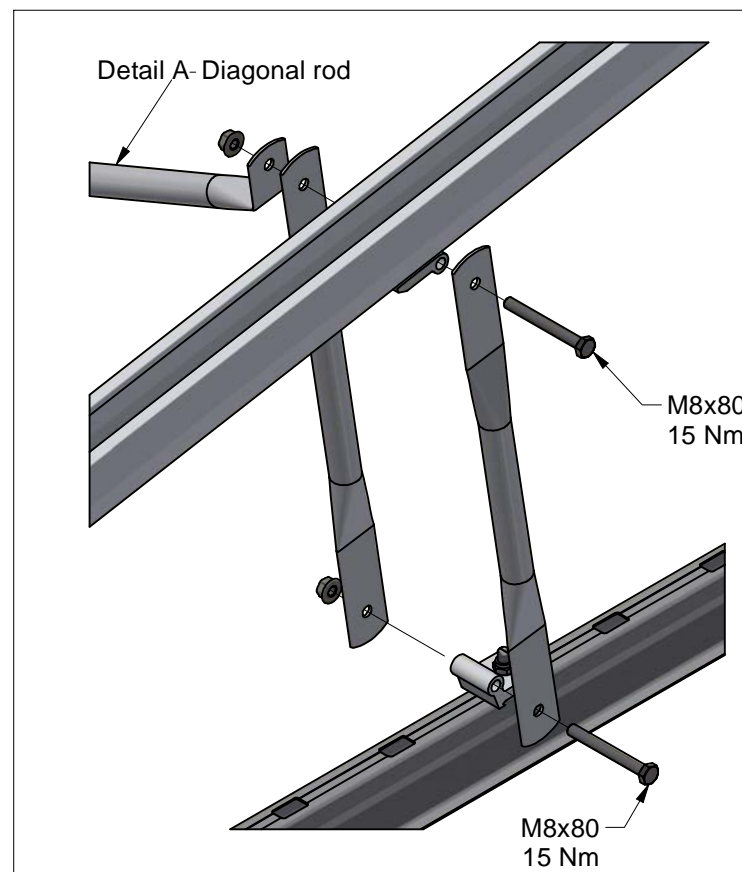
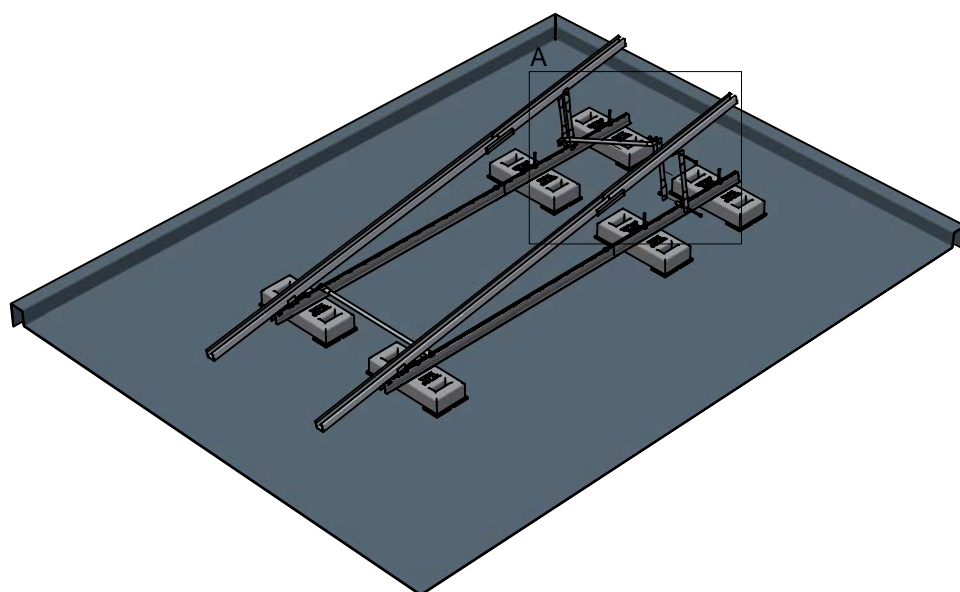


ValkHint!

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

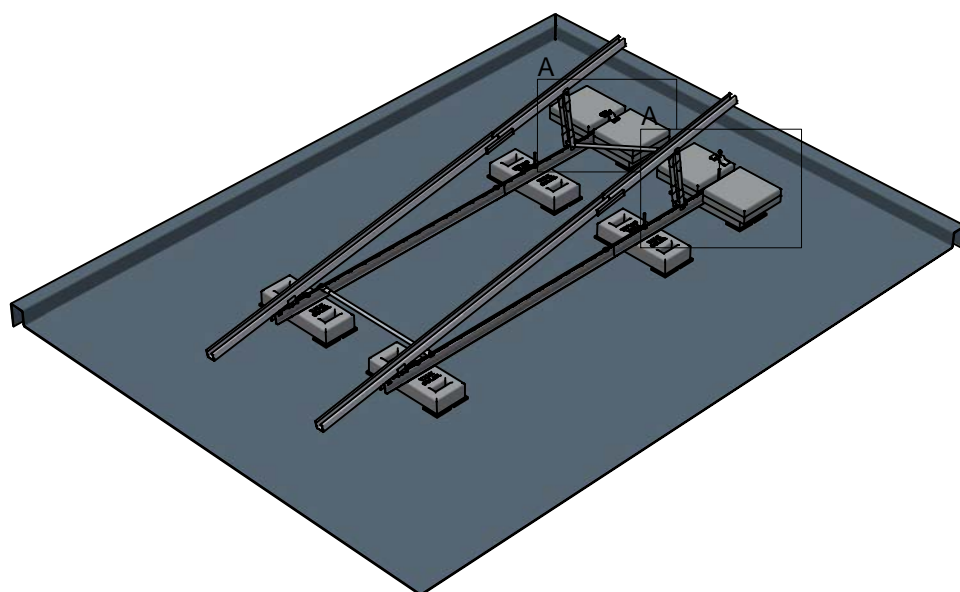
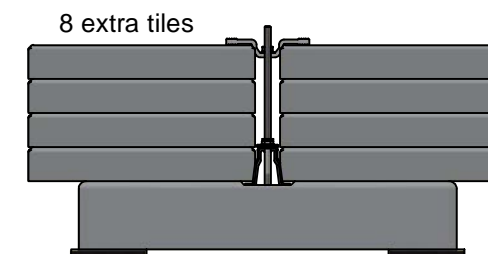
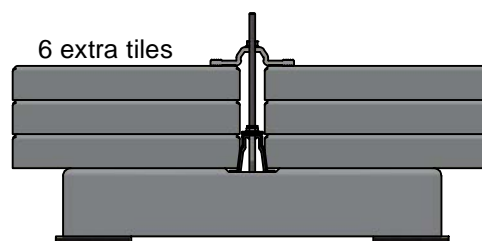
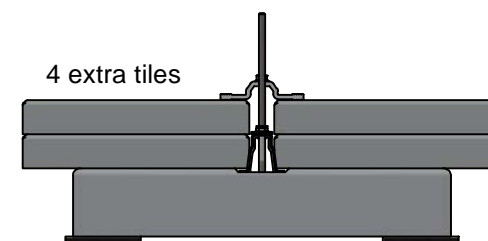
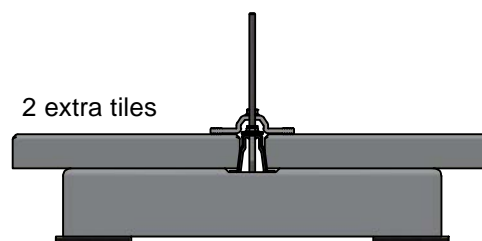
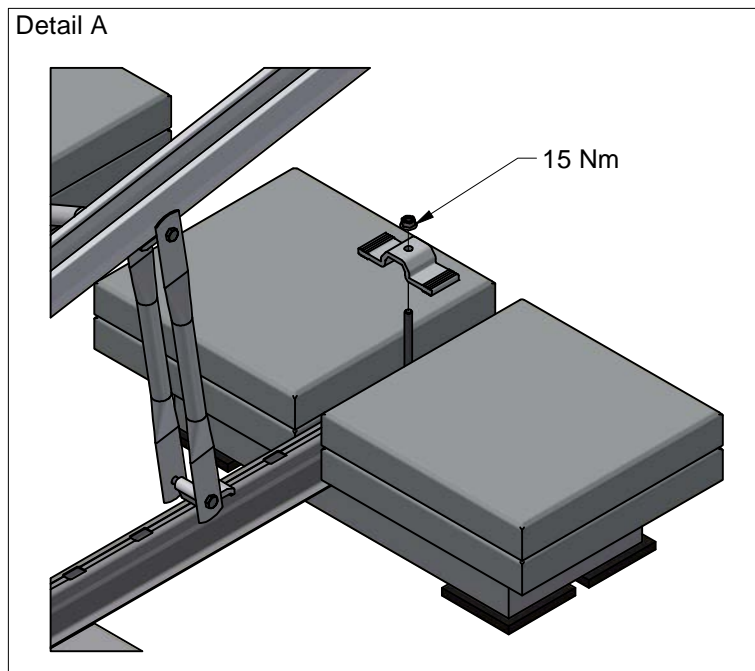
Detail A.2





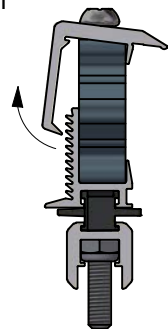
Mount the push rods between the aluminium profile and the roof carrier.

Detail A



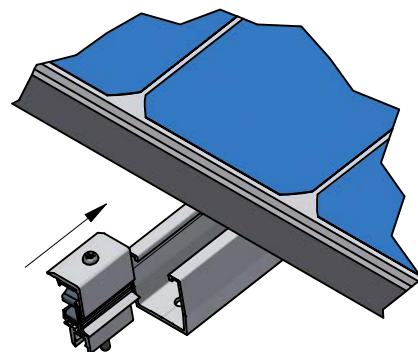
For the required number of tiles check the ballast tables in front of this manual.

Step 1

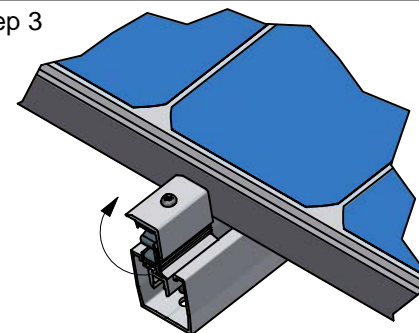


Take the end clamp out of its slot for an easier assembly.

Step 2

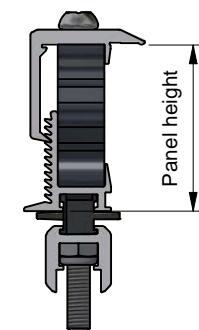


Step 3



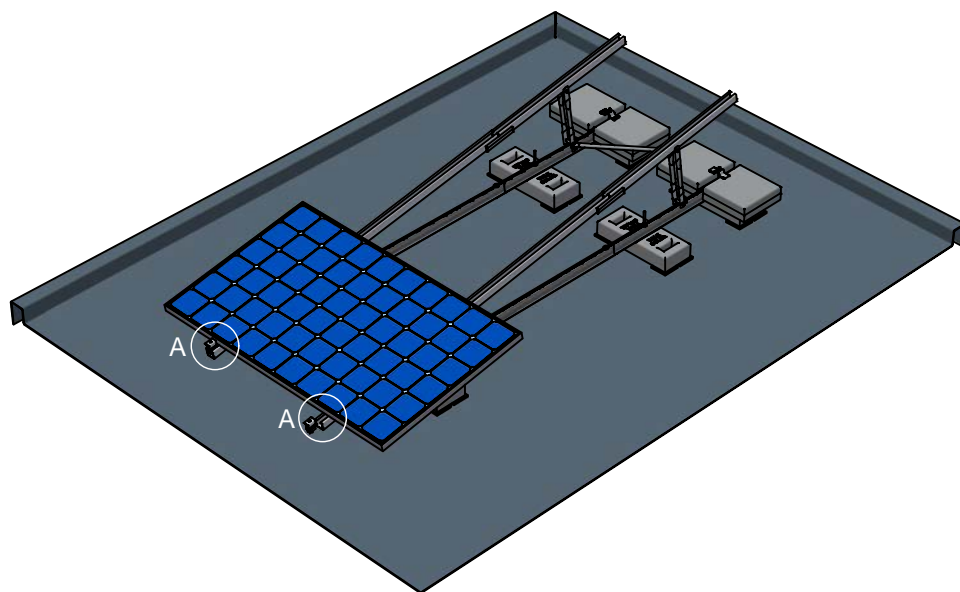
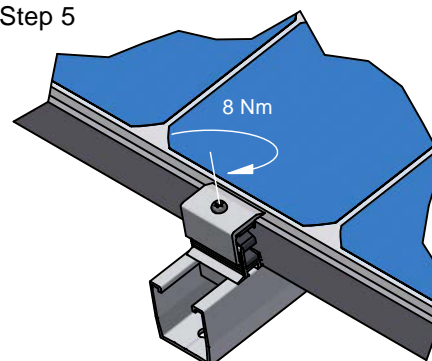
The end clamp can only be turned clockwise, so make sure the clamp is placed in the right way.

Step 4

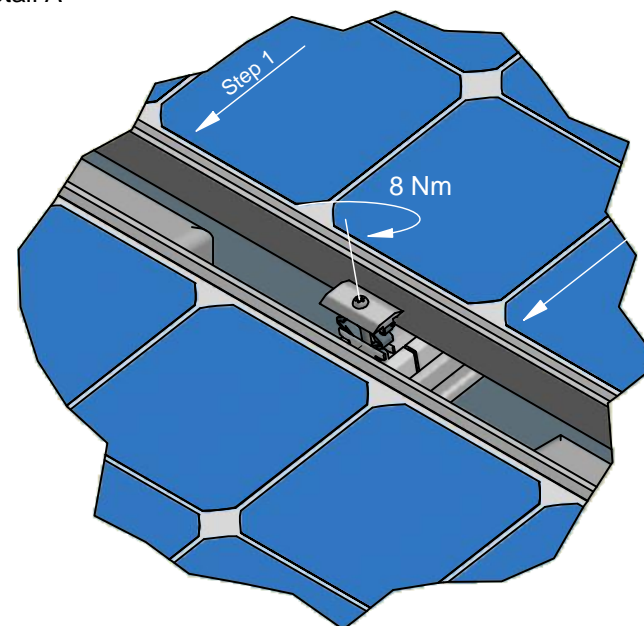


Put the end clamp in the right slot to continue the assembly.

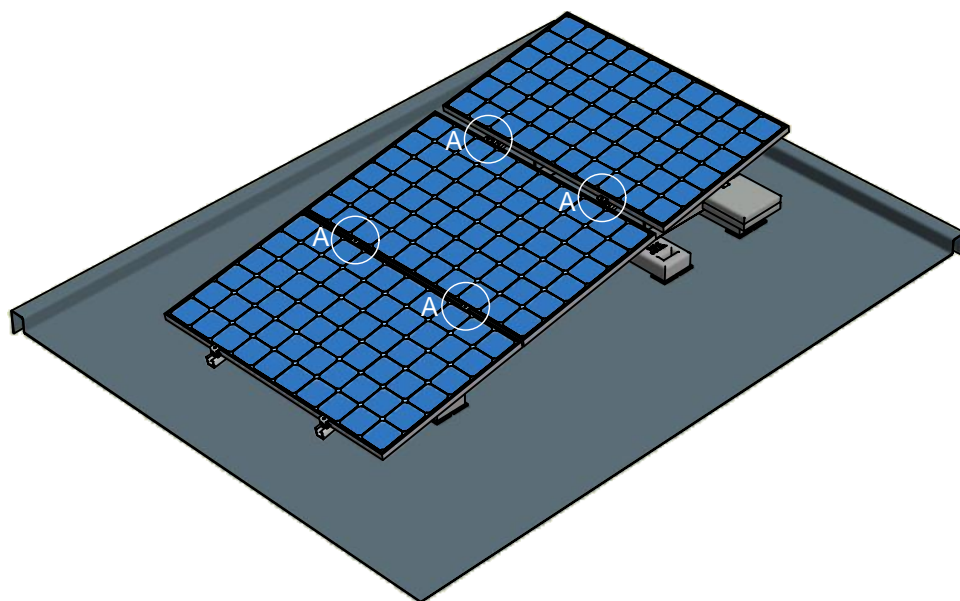
Step 5

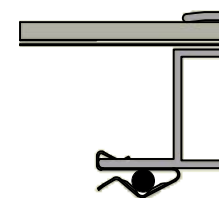
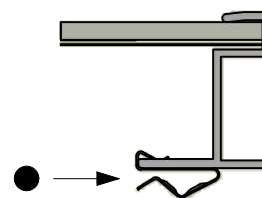
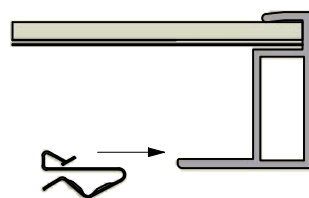


Detail A



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.

