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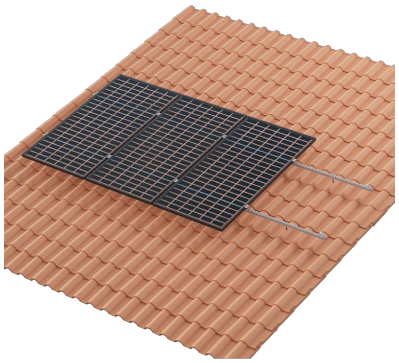
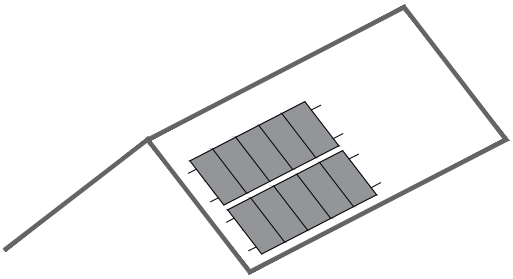
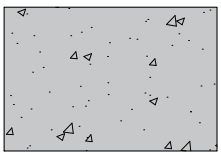


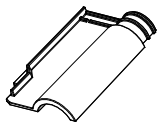
Installations

Select

Portrait

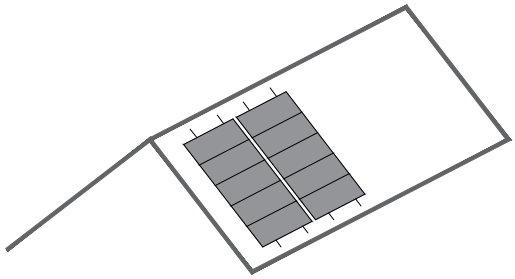


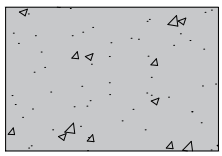


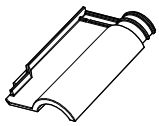


Concrete Slab

Landscape

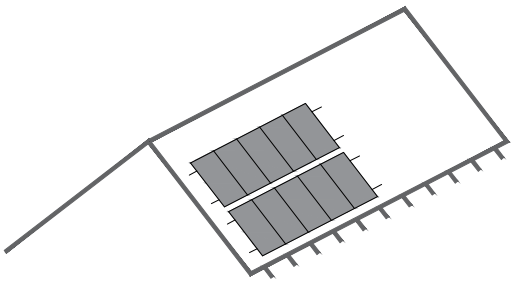


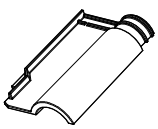




Concrete Slab

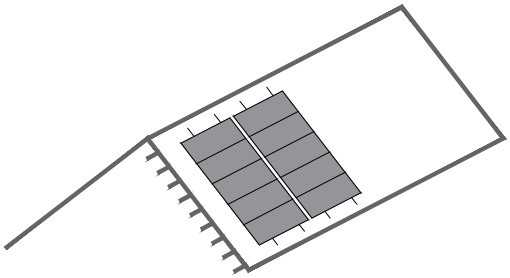
Portrait

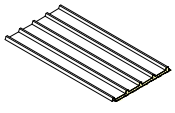




Wooden Beam

Landscape





Wooden Beam

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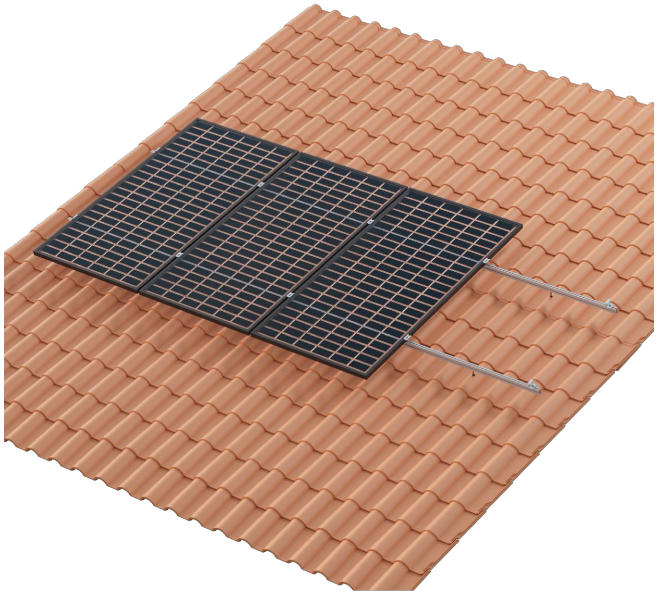

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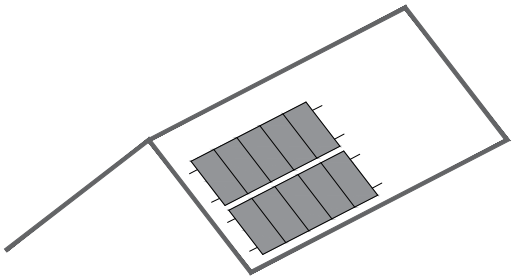

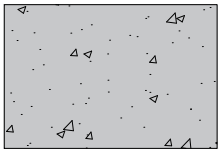

Concrete Slab

Return

Sunfer Estructuras, S.L.U.
Camino de la Dula s/n
Albalat de la Ribera - 46687 (Valencia) Spain

100% ES19/86524 CE

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General Information and Recommendations ENG

- All installation instructions and product specifications provided must be adhered to.
- Check the condition of the roof covering and its carrying capacity. The management overseeing installation is responsible for verifying that the substructure of the roof as well as the static structure of the building itself is capable of supporting additional loads before any installation is carried out.
- To avoid turbulence from wind a minimum security distance (defined by regulations) must be maintained between the photovoltaic installations and roof edges, as well as other obstacles such as chimneys or vents.
- In the case of chimneys or other features which may need future maintenance, a minimum distance must be maintained in order to facilitate said maintenance or to extinguish fires. This distance shall be either 1m or that suggested by the relevant authority, whichever is greater.
- The surface of the roof covering must be clean and dry. Any major irregularities of the roof must be corrected or eliminated.
- The mounting must always be anchored to the structure of the roof.
- Check the weathertightness of the mount once fastened.
- Place solar panels such that they are distributed symmetrically along the support, leaving equal overhangs at each end.
- Clamps must not be tightened using impact drivers.
- Check that the support attachment points are compatible with the solar panel manufacturer's specifications.
- Uninstallation must be carried out in the reverse order from the installation.
- During the shipping of products take extreme care to maintain the integrity of the packaging. Store in a dry, well-ventilated area. Minimize exposure to large temperature differences and humidity. Avoid outdoor storage. Avoid sources of dripping water, puddles, splashing, or any other contact with water in the storage area. If the product becomes wet, immediately dry and clean as well as possible. Do not leave the product directly on the floor or ground where it may attract moisture. Store on the shipment's origninal pallet or on shelves.
- We reserve the right to make changes to our products at any moment without prior warning if, from our point of view, the changes are necessary for the improvement of the product. All illustrations in plans and catalogues are for example only and therefore may differ from the actual product provided.
- Aluminum components can be delivered in different finishes without compromising the structural solution. Available finishes: raw/anodised/lacquered.

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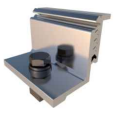
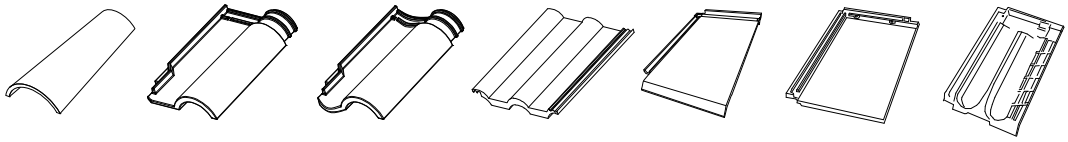
Kit Contents



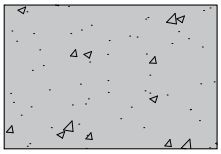




	S01-EN	S10-EN	S11-EN	UG1-EN	G1-1230-EN	G1-1800-EN	TG1	S13
1	4	4	-	-	2	-	4	2
2	6	4	2	2	4	-	4	3
3	8	4	4	2	-	4	4	4
4	12	4	6	4	2	4	4	5



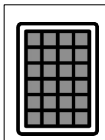
Anchoring Surfaces:



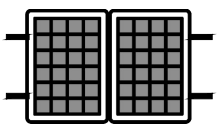
Concrete Slab

alu Profiles of **EN AW 6005A T6 aluminium**

A Fasteners of **A2-70 stainless steel**



Max.
2279x1150 mm
Thickness:
28-40 mm



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Portrait

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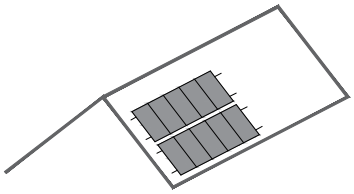
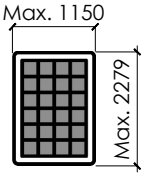
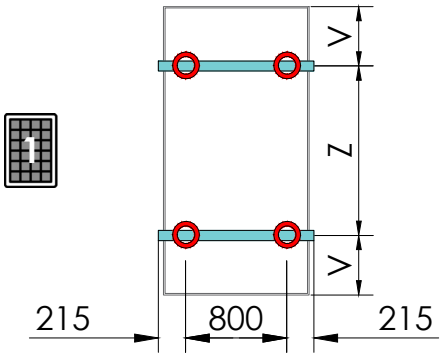
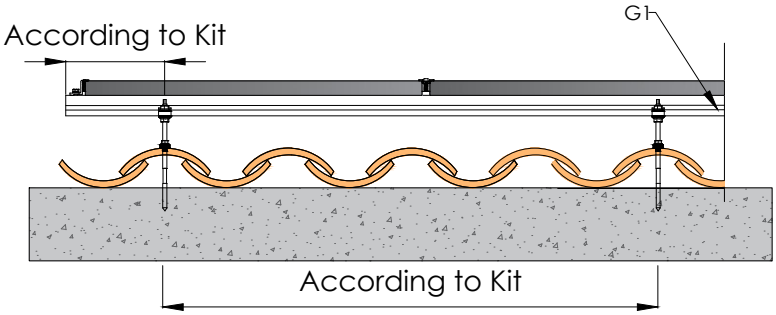
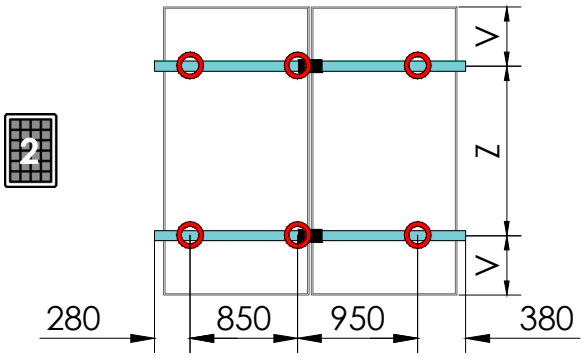
Anchor Spacing

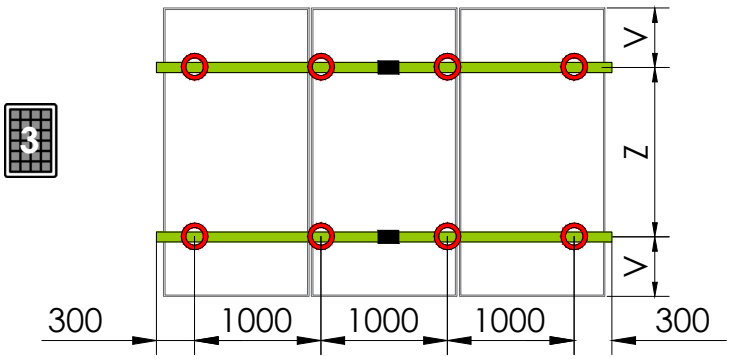


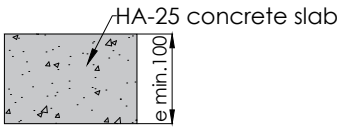


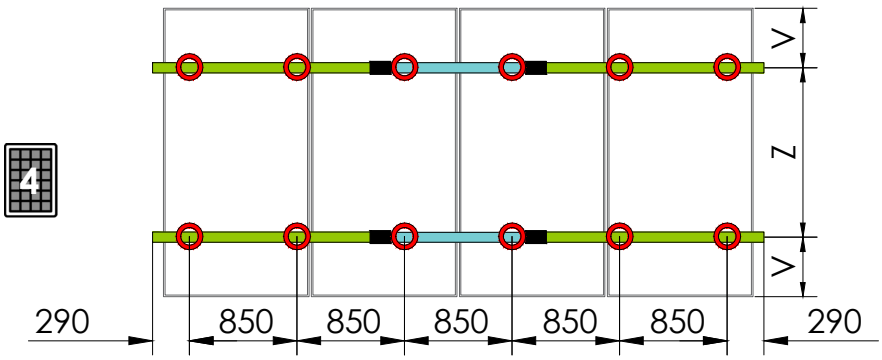


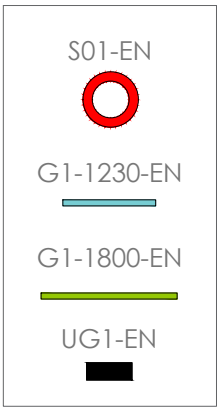












The maximum distance "Z" between profiles and the overhang "V" of the panel must be obtained from the technical datasheets of the panel manufacturer.

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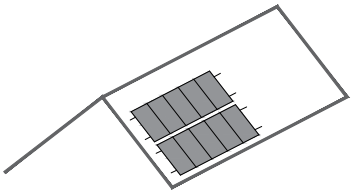
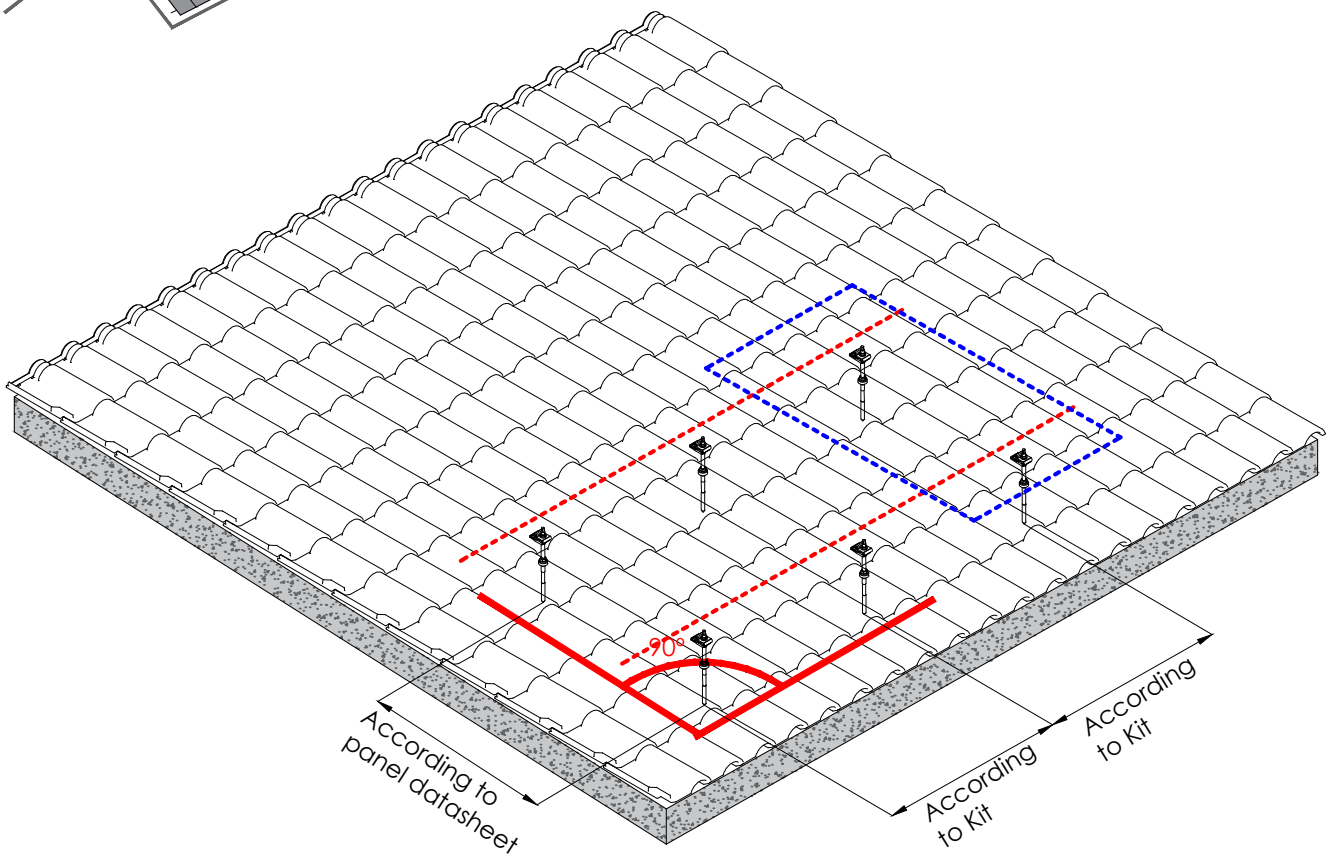
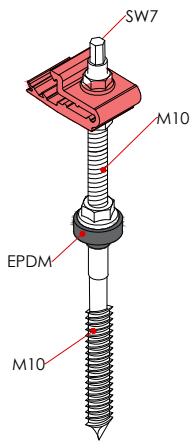
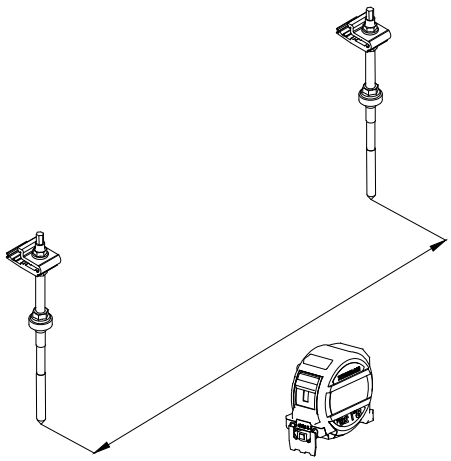
Structure Installation





Note
The "L" bracket must not be attached until the anchor has been fixed.





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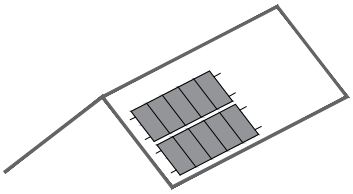

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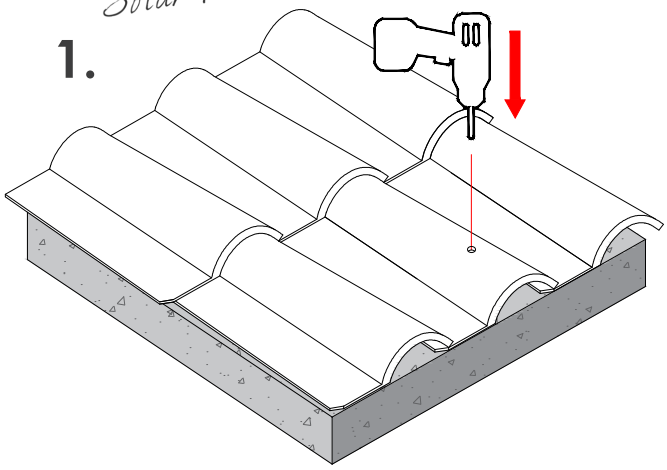

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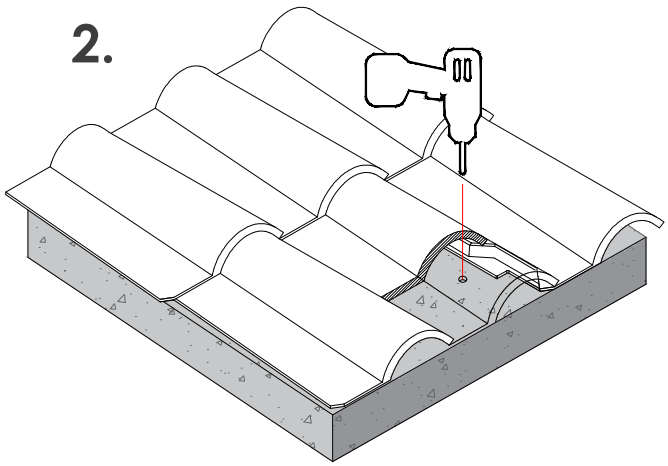

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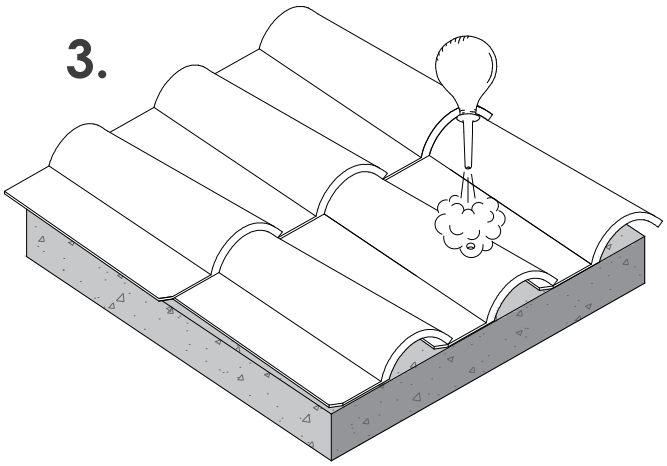

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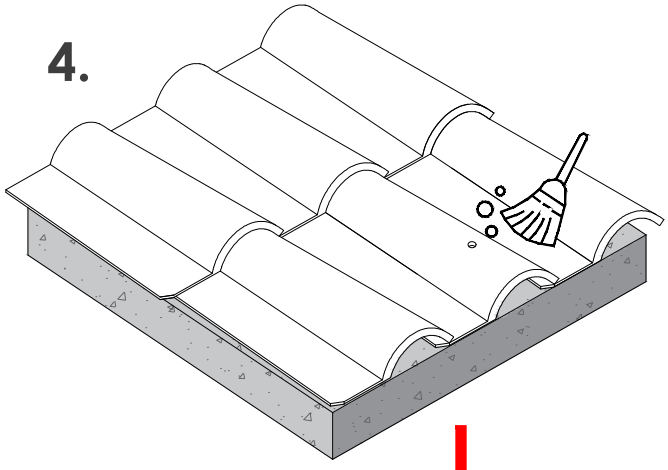

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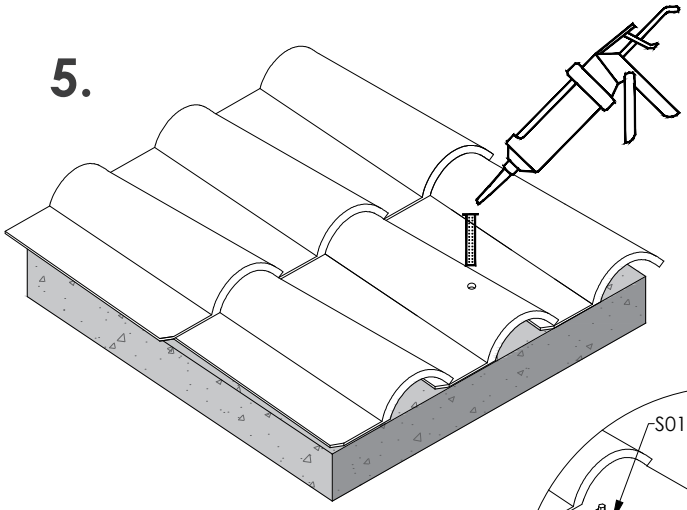

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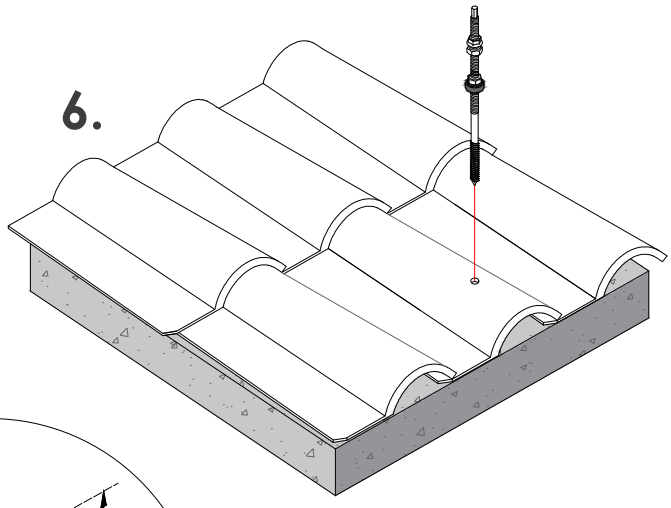

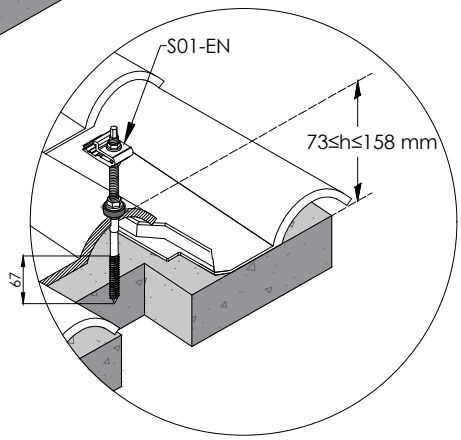

*Must withstand reactions at the attachment point

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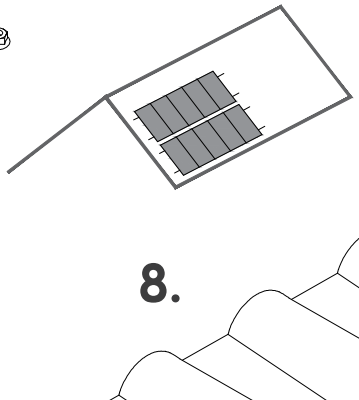

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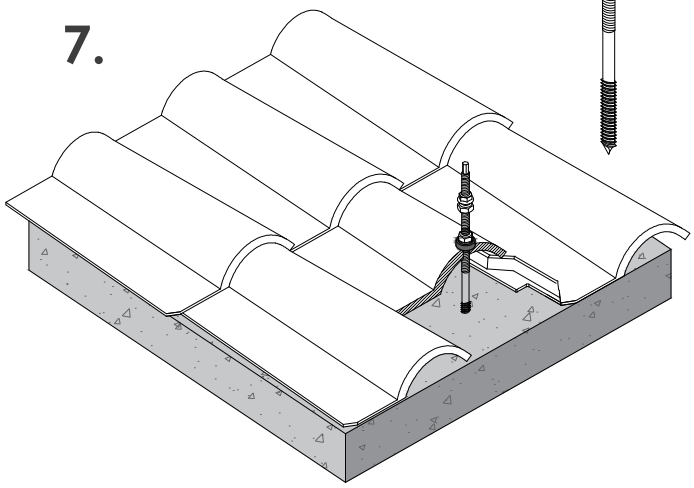

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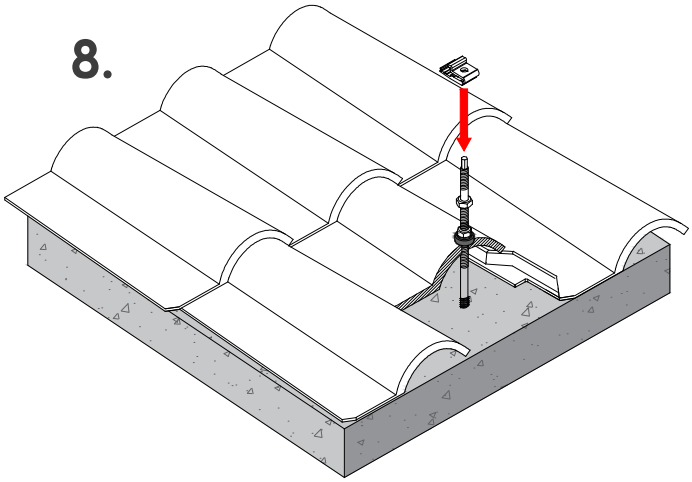

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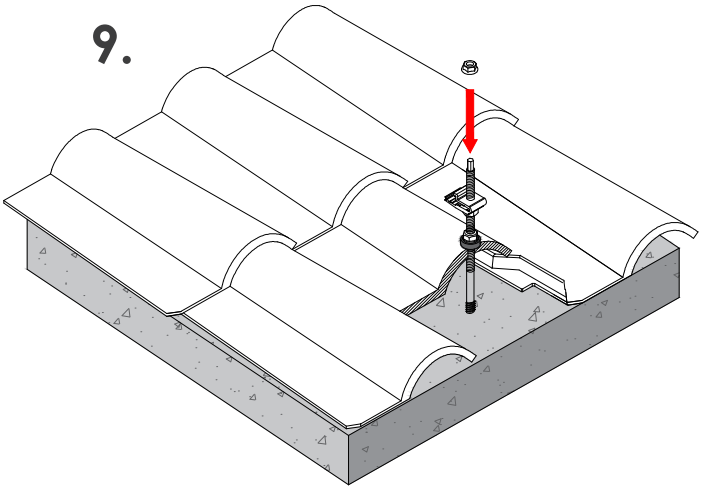

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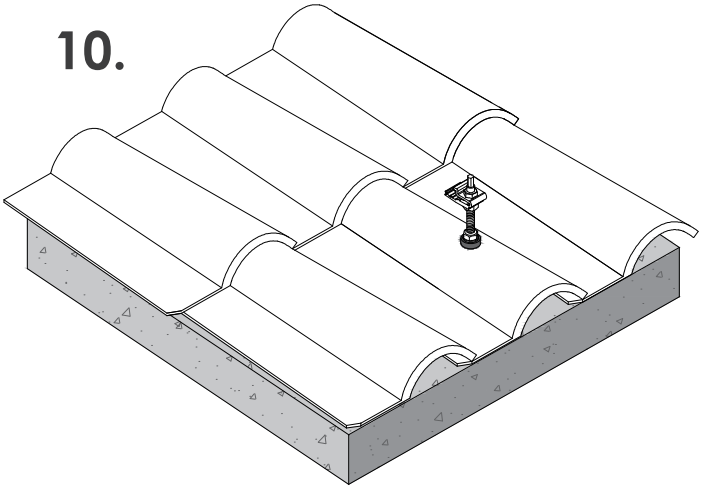

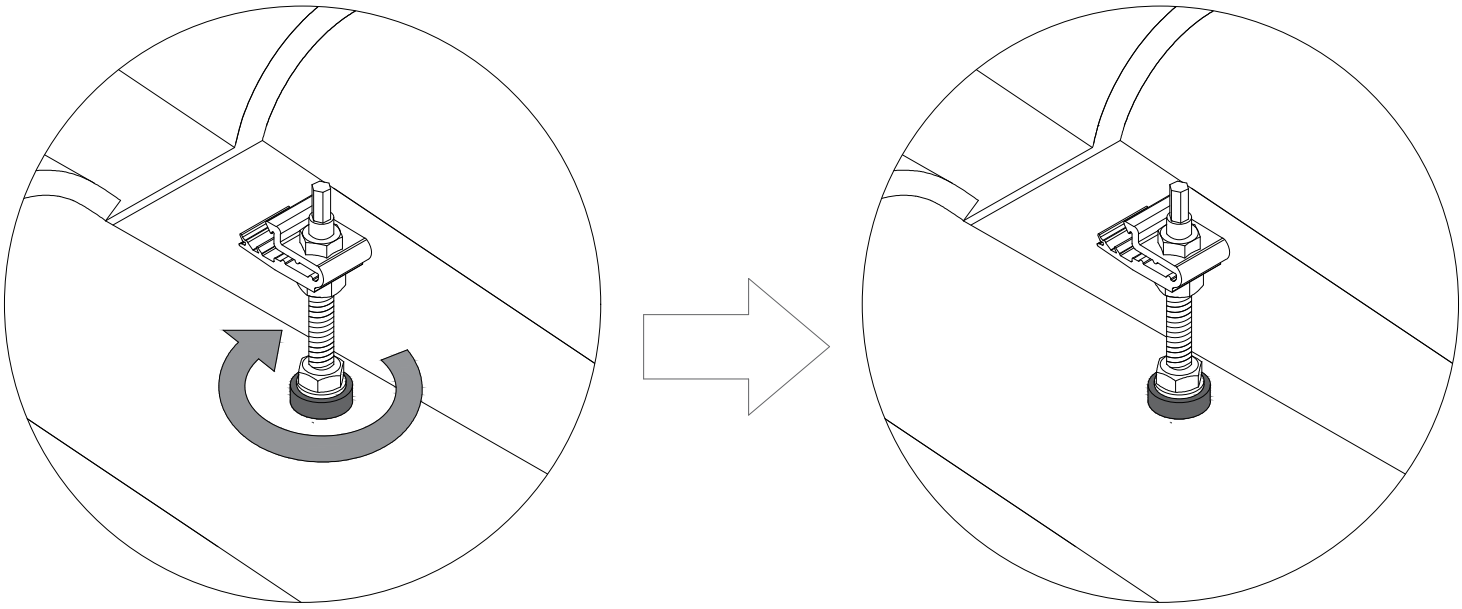

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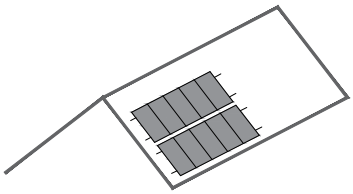

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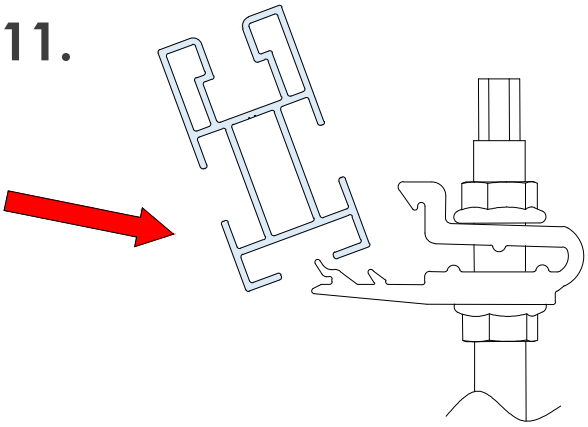

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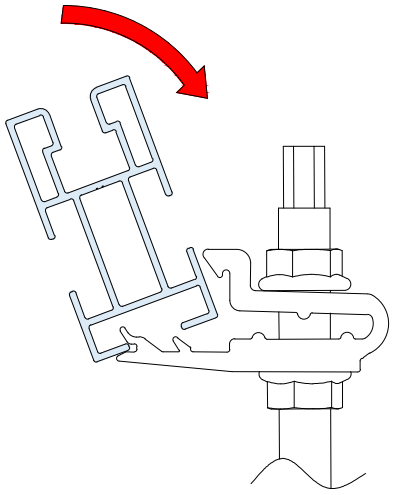

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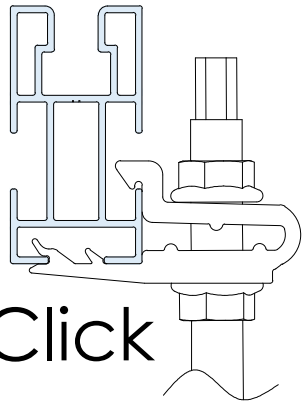
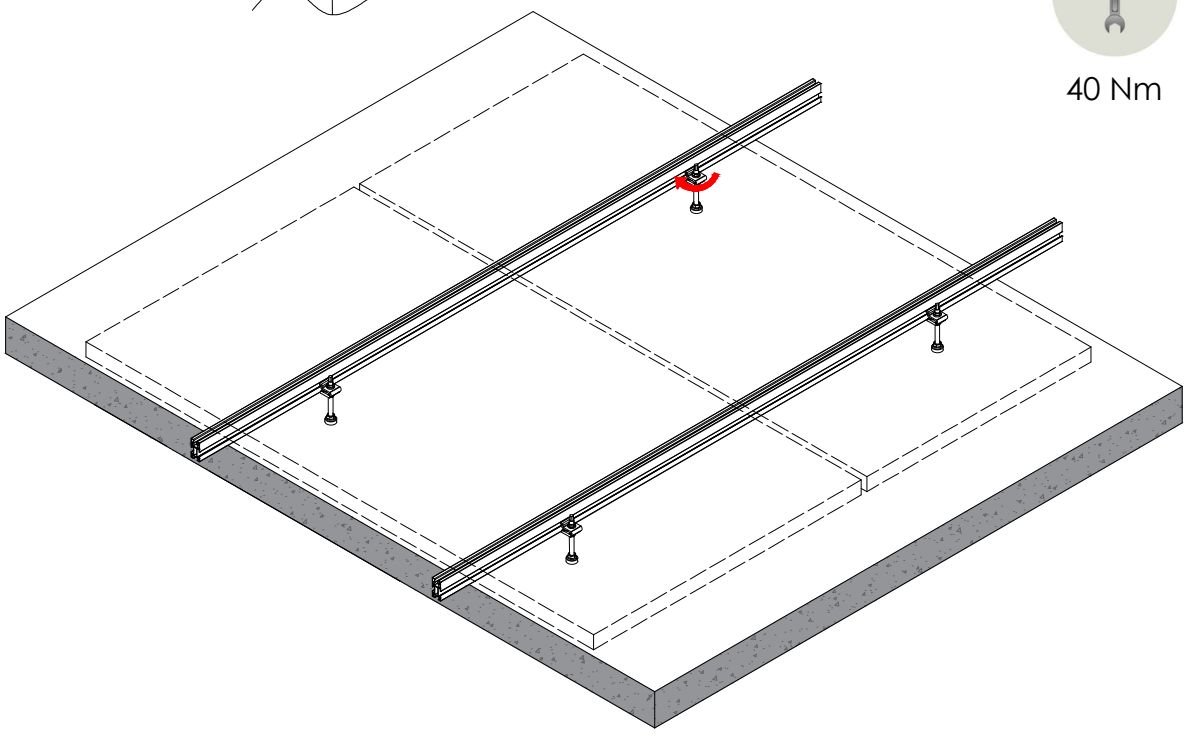


* Click

40 Nm



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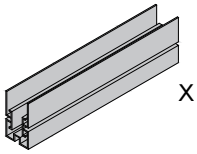
6 Nm

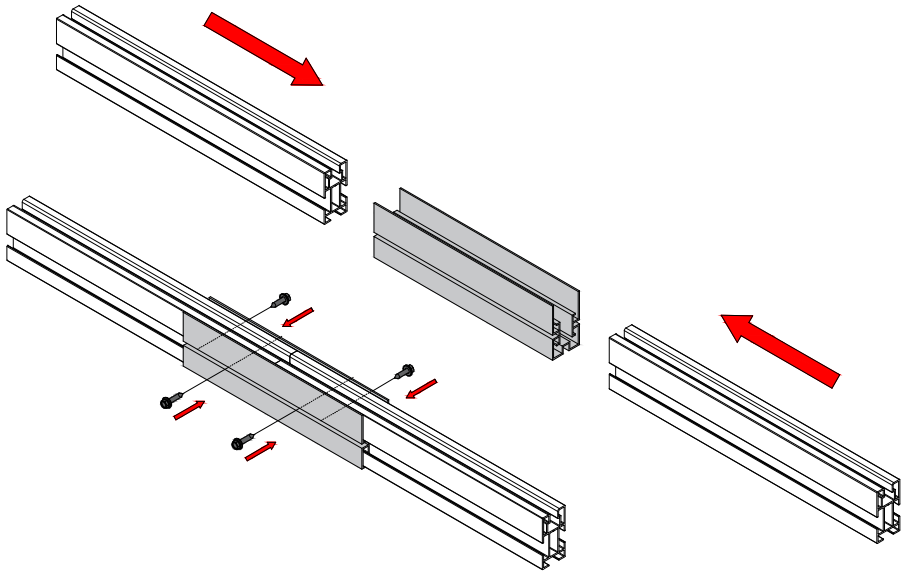
(x4)

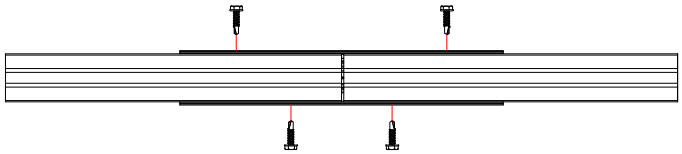
UG1-EN

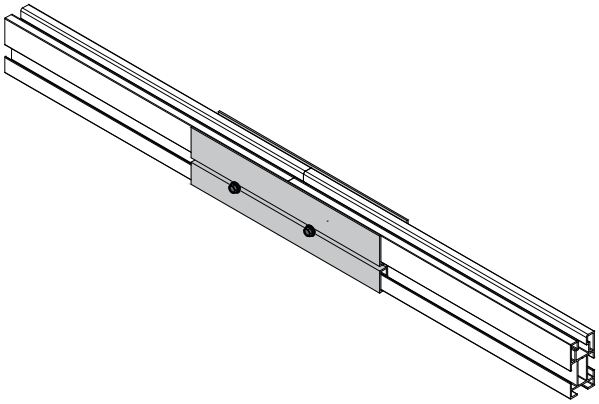


x1

x4







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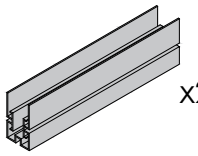
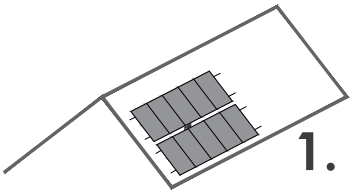
Joining Kit
Optional Step: To join two or more kits

01V-EN

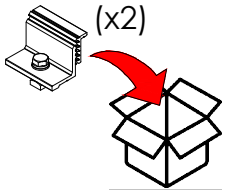
S15-EN
Not included





Refer to UG1-EN installation

Extra
(x2)

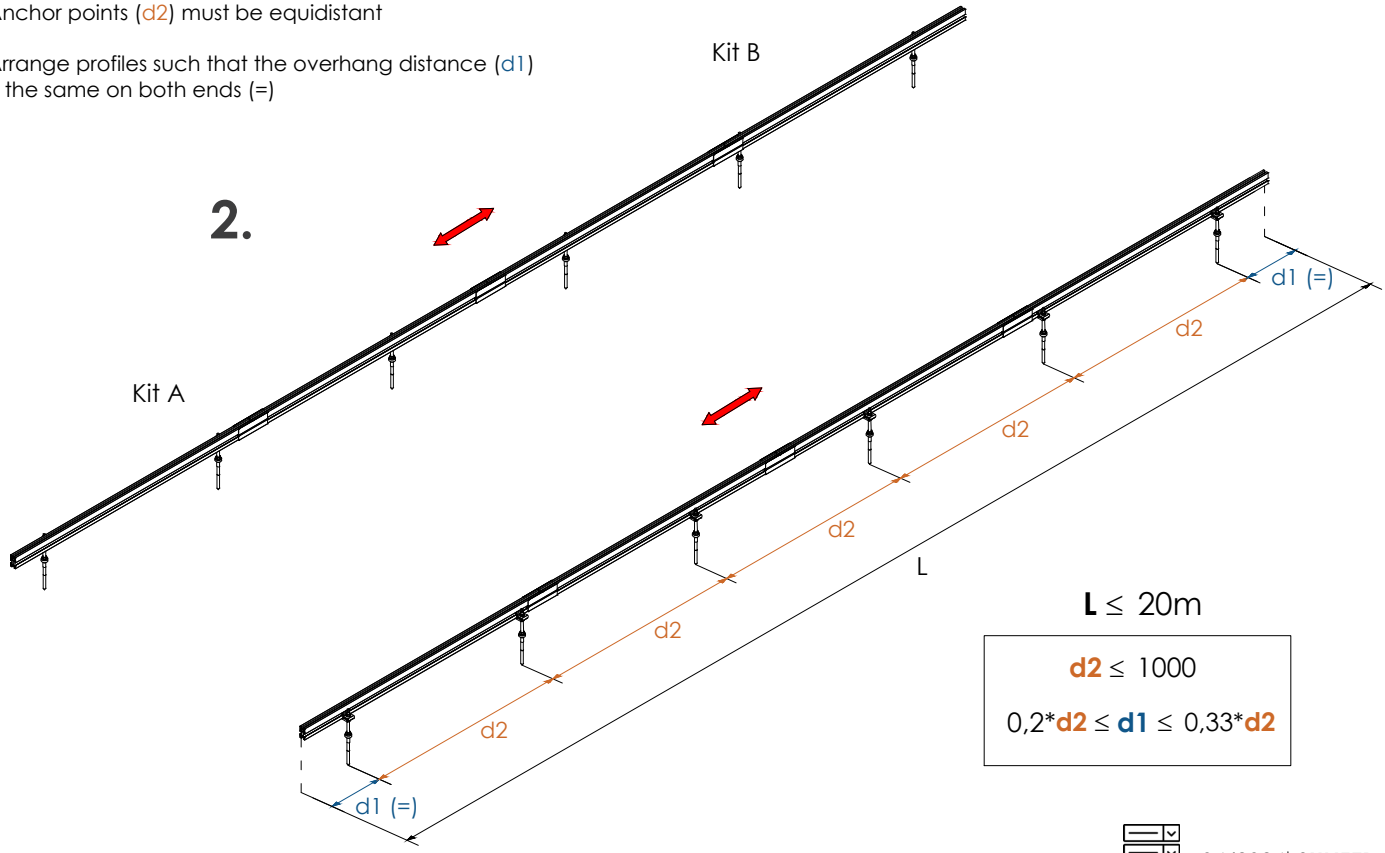


There are (2) extra S10-EN in every kit

Joining of kits:

Anchor points (d2) must be equidistant

Arrange profiles such that the overhang distance (d1) is the same on both ends (=)



L ≤ 20m

d2 ≤ 1000

0,2***d2** ≤ **d1** ≤ 0,33***d2**

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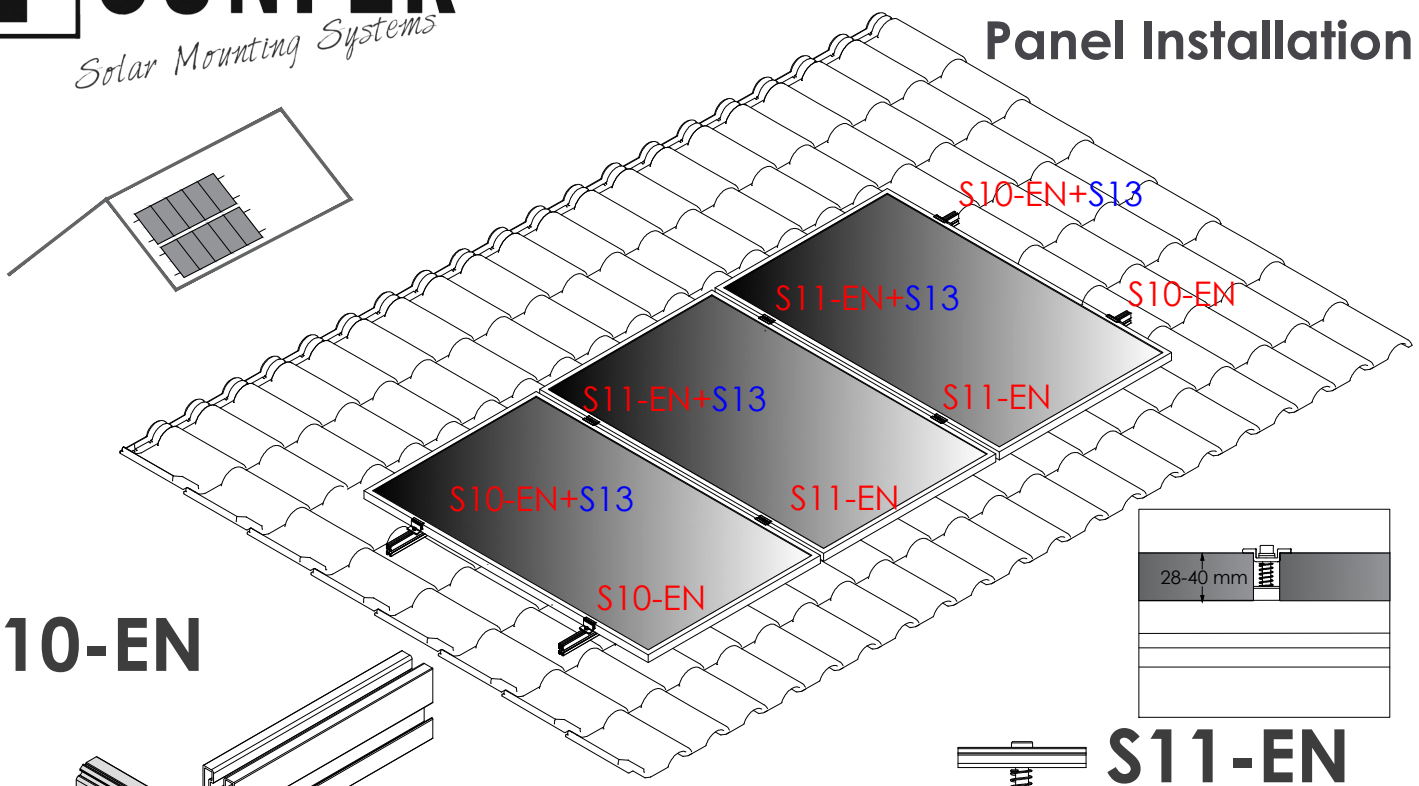
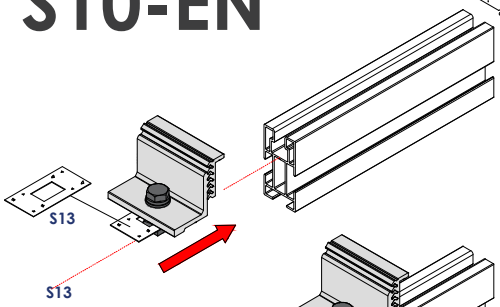
Panel Installation

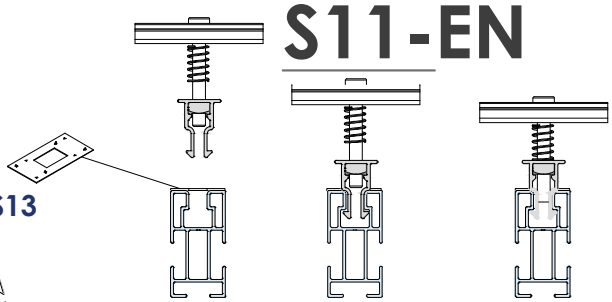


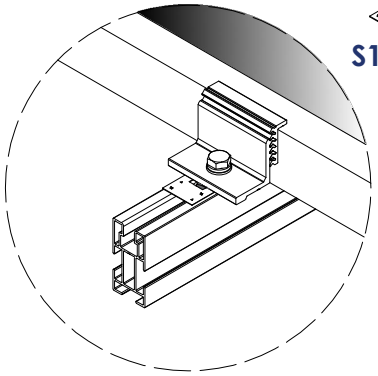
S10-EN

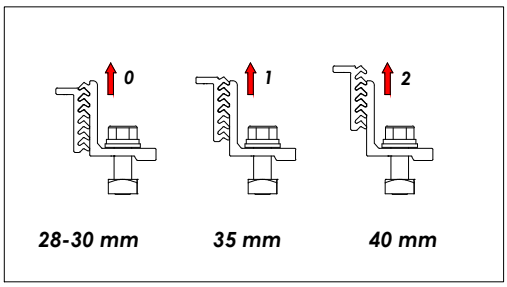


7 Nm

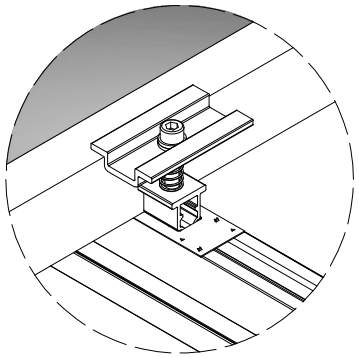
S11-EN

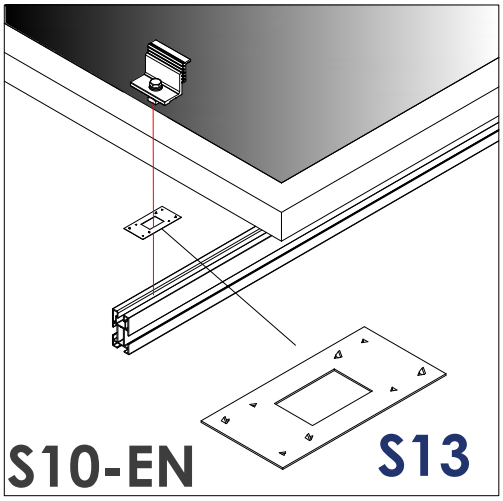


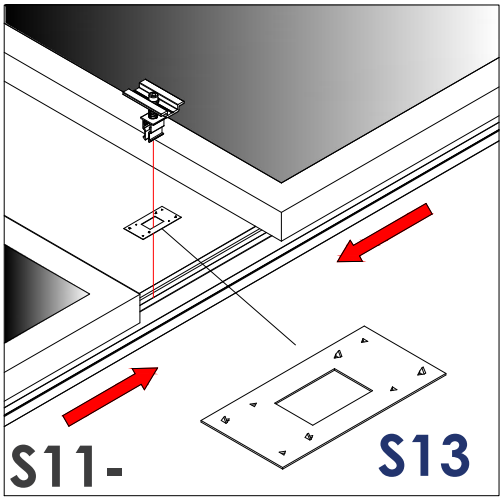


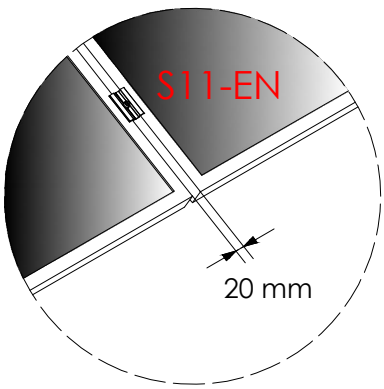


7 Nm









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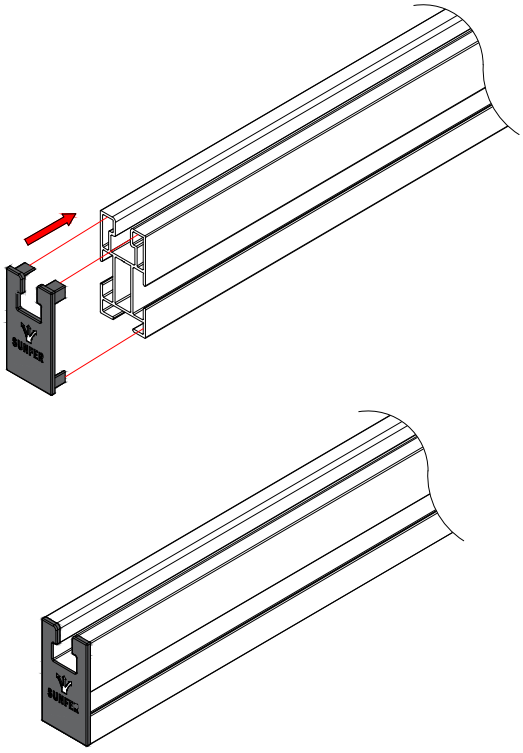
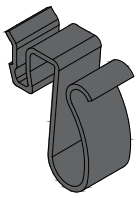
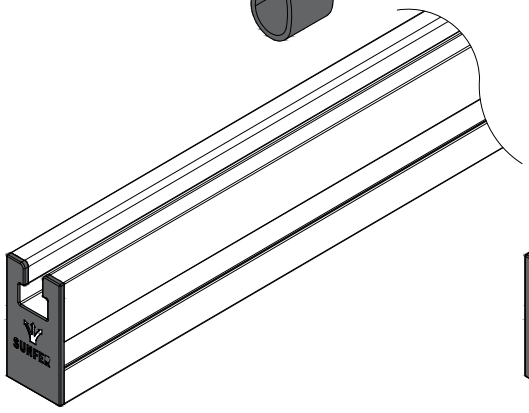
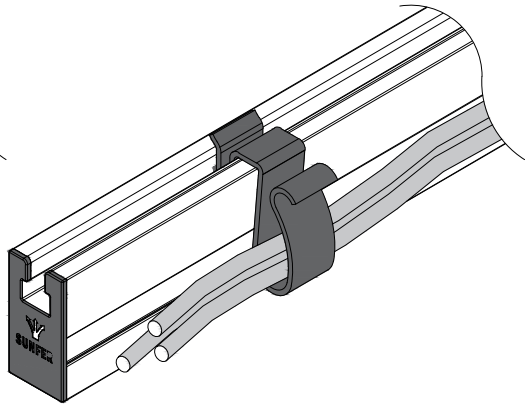




Optional
Cable Clip
(Not Included)





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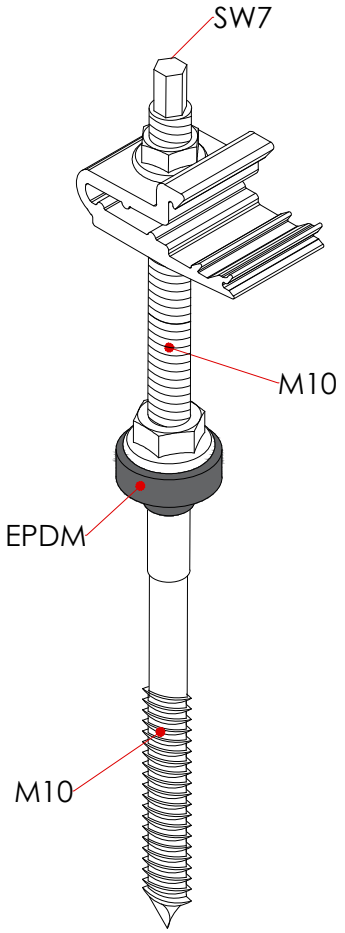
S01-EN
Technical Information: Anchor



Characteristics
Hexagonal Head.
A2-70 Stainless Steel.
Application Surfaces:
- Wood with a maximum density of 350 kg/m³. Wood type C24 or greater
- HA-25 Concrete Slab

Technical Specifications:
Screw Length: 250 mm.
Screw Diameter: 10 mm.
Pre-drill Diameter:
Wood: 7 mm
Concrete: See anchor datasheet

Yield Moment $M_{y,RK}$*
5.80 [kN.cm]

Tension and Compression Strengths*

K_{mod}=0.7	**Effective Embedment Depth** lef **[mm]**									
	40	**43**	**46**	**49**	**52**	**55**	**58**	**61**	**64**	**67**
N_{RK} [kN]	2.40	2.58	2.76	2.94	3.12	3.30	3.48	3.66	3.84	4.02

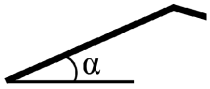
*Data valid for wood of C24 or greater

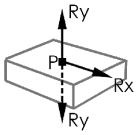
Description	Coplanar Support
Panel Disposition	Portrait/Landscape
Format	KIT of 1 to 4 panels
Joining Kit	S15-EN not included (optional)
Application Surface	Tile and Metal Sheet
Anchoring Surface	Concrete Slab and Wooden Beam
Type of Fastening	Screwed
Fastener	S01-EN
Profile	G1-EN
Grounding piece	S13
Maximum Panel Dimensions	2279x1150 mm
Panel Thickness	from 28 to 40 mm
Materials	Fasteners: A2-70 Stainless Steel Profiles: Raw or Anodized EN AW 6005A T6 Aluminium EPDM Weather Seal
Maximum Loads	According to Application
Structural Calculation	Computational models checked against EUROCODE 9 "Structures of Aluminium"

SUNFER
Solar Mounting Systems

01V-EN
Loads and Reactions

Maximum admissible loads and their reactions





5° Pitch

10° Pitch

15° Pitch

20° Pitch

25° Pitch

30° Pitch

35° Pitch

40° Pitch

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Solar Mounting Systems

01V-EN
Loads and Reactions

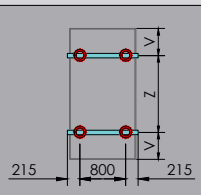
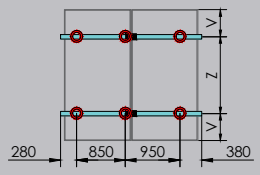
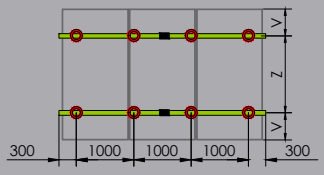
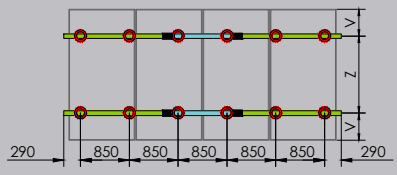
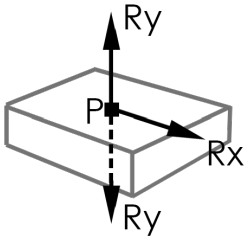
Maximum Admissible Loads and Reactions					5°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	265	0.32	0.00	1.86
	130	265	0.26	0.03	1.53
	150	265	0.26	0.10	1.54
	180	265	0.26	0.22	1.57
	210	265	0.26	0.36	1.60
	250	265	0.26	0.58	1.65
2 	110	220	0.33	0.00	2.40
	130	265	0.32	0.04	2.34
	150	265	0.32	0.12	2.36
	180	264	0.32	0.27	2.40
	210	258	0.31	0.44	2.40
	250	248	0.30	0.72	2.40
3 	110	191	0.29	0.00	2.40
	130	237	0.29	0.04	2.40
	150	234	0.28	0.12	2.40
	180	228	0.28	0.27	2.40
	210	222	0.27	0.44	2.40
	250	212	0.26	0.71	2.40
4 	110	229	0.25	0.00	2.40
	130	265	0.23	0.03	2.25
	150	265	0.23	0.09	2.27
	180	265	0.23	0.20	2.31
	210	265	0.23	0.32	2.36
	250	260	0.23	0.52	2.40

Table 1 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

SUNFER
Solar Mounting Systems

01V-EN
Loads and Reactions

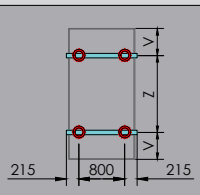
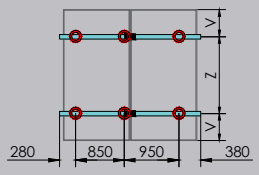
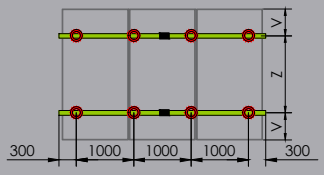
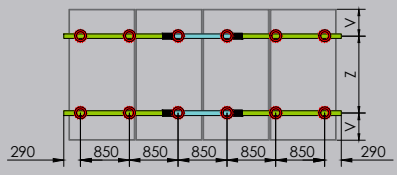
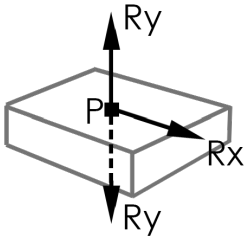
Maximum Admissible Loads and Reactions					10°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	265	0.63	0.00	1.82
	130	265	0.51	0.03	1.49
	150	265	0.51	0.10	1.51
	180	265	0.51	0.22	1.54
	210	265	0.51	0.36	1.57
	250	265	0.51	0.58	1.62
2 	110	225	0.67	0.00	2.40
	130	265	0.63	0.04	2.29
	150	265	0.63	0.13	2.31
	180	265	0.63	0.27	2.35
	210	264	0.63	0.45	2.40
	250	254	0.61	0.72	2.40
3 	110	196	0.58	0.00	2.40
	130	242	0.58	0.04	2.40
	150	239	0.57	0.12	2.40
	180	234	0.56	0.27	2.40
	210	227	0.54	0.44	2.40
	250	217	0.52	0.71	2.40
4 	110	235	0.51	0.00	2.40
	130	265	0.46	0.03	2.20
	150	265	0.46	0.09	2.23
	180	265	0.46	0.20	2.27
	210	265	0.46	0.32	2.31
	250	265	0.46	0.52	2.39

Table 2 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

SUNFER
Solar Mounting Systems

01V-EN
Loads and Reactions

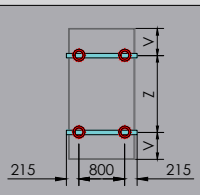
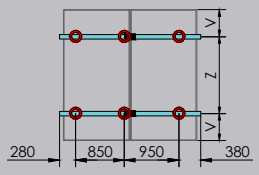
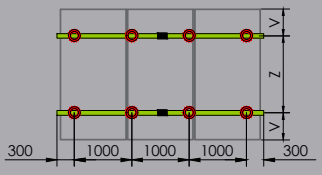
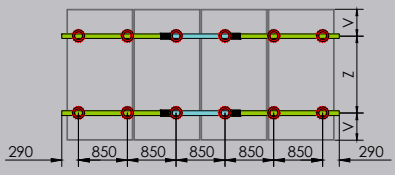
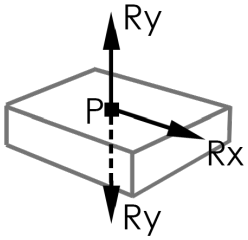
Maximum Admissible Loads and Reactions					15°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	265	0.92	0.02	1.78
	130	265	0.75	0.09	1.47
	150	265	0.75	0.18	1.50
	180	265	0.75	0.33	1.55
	210	265	0.75	0.51	1.61
	250	265	0.75	0.80	1.70
2 	110	229	1.00	0.03	2.38
	130	265	0.93	0.12	2.26
	150	265	0.93	0.22	2.30
	180	265	0.93	0.41	2.37
	210	257	0.90	0.64	2.40
	250	238	0.84	0.99	2.40
3 	110	200	0.87	0.03	2.40
	130	245	0.85	0.12	2.40
	150	240	0.84	0.22	2.40
	180	230	0.80	0.41	2.40
	210	218	0.76	0.63	2.40
	250	200	0.71	0.98	2.40
4 	110	240	0.76	0.02	2.40
	130	265	0.67	0.09	2.17
	150	265	0.67	0.16	2.21
	180	265	0.67	0.30	2.29
	210	265	0.67	0.46	2.37
	250	251	0.64	0.72	2.40

Table 3 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

SUNFER
Solar Mounting Systems

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Loads and Reactions

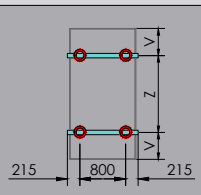
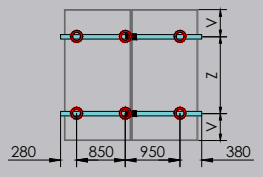
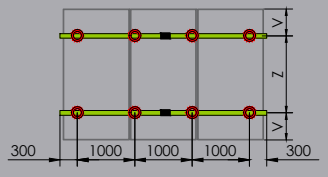
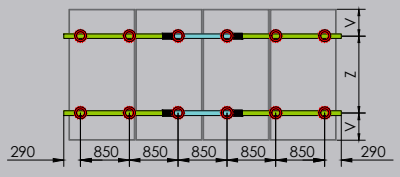
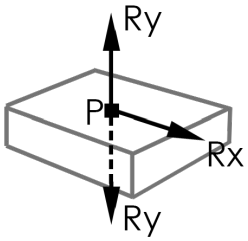
Maximum Admissible Loads and Reactions						20°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)	
1 	110	220	1.00	0.03	1.43
	130	265	0.96	0.10	1.40
	150	265	0.96	0.19	1.43
	180	265	0.96	0.34	1.48
	210	265	0.96	0.52	1.53
	250	265	0.96	0.80	1.62
2 	110	175	1.00	0.03	1.78
	130	218	1.00	0.12	1.81
	150	218	1.00	0.23	1.85
	180	218	1.00	0.42	1.93
	210	218	1.00	0.64	2.02
	250	218	1.00	0.99	2.15
3 	110	177	1.00	0.03	2.05
	130	221	1.00	0.12	2.09
	150	221	1.00	0.23	2.13
	180	221	1.00	0.41	2.22
	210	221	1.00	0.64	2.32
	250	212	0.96	0.98	2.40
4 	110	245	1.00	0.02	2.32
	130	265	0.87	0.09	2.07
	150	265	0.87	0.17	2.11
	180	265	0.87	0.31	2.18
	210	265	0.87	0.47	2.26
	250	265	0.87	0.72	2.39

Table 4 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Solar Mounting Systems

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Loads and Reactions

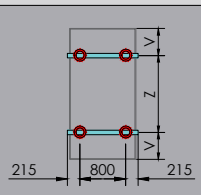
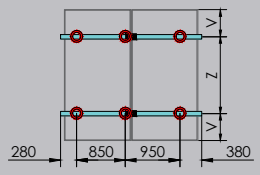
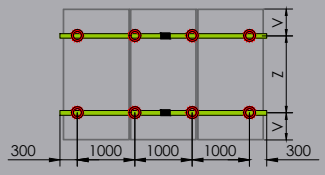
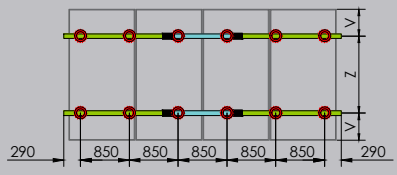
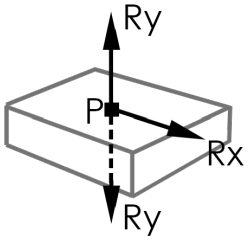
Maximum Admissible Loads and Reactions					25°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	182	1.00	0.03	1.13
	130	228	1.00	0.11	1.15
	150	228	1.00	0.19	1.18
	180	228	1.00	0.34	1.23
	210	228	1.00	0.52	1.28
	250	228	1.00	0.81	1.37
2 	110	144	1.00	0.04	1.41
	130	180	1.00	0.13	1.45
	150	180	1.00	0.24	1.49
	180	180	1.00	0.43	1.56
	210	180	1.00	0.65	1.65
	250	180	1.00	1.00	1.79
3 	110	145	1.00	0.04	1.62
	130	182	1.00	0.13	1.66
	150	182	1.00	0.23	1.71
	180	182	1.00	0.42	1.79
	210	182	1.00	0.64	1.89
	250	182	1.00	0.99	2.05
4 	110	203	1.00	0.03	1.83
	130	254	1.00	0.10	1.87
	150	254	1.00	0.17	1.91
	180	254	1.00	0.31	1.98
	210	254	1.00	0.47	2.06
	250	254	1.00	0.73	2.19

Table 5 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

SUNFER
Solar Mounting Systems

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Loads and Reactions

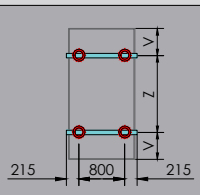
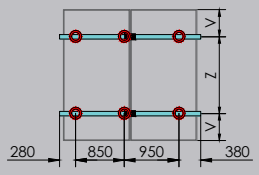
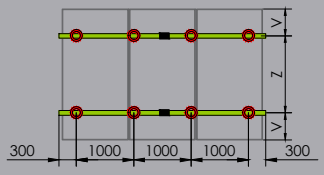
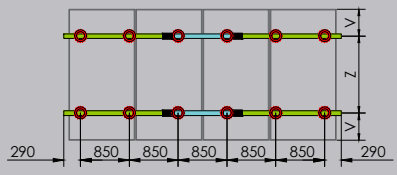
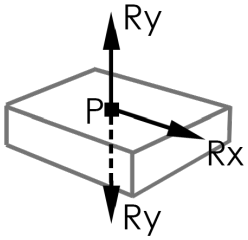
Maximum Admissible Loads and Reactions					30°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	159	1.00	0.00	0.96
	130	198	1.00	0.00	0.99
	150	198	1.00	0.04	1.03
	180	198	1.00	0.13	1.11
	210	198	1.00	0.23	1.20
	250	198	1.00	0.39	1.34
2 	110	125	1.00	0.00	1.21
	130	156	1.00	0.00	1.27
	150	156	1.00	0.06	1.33
	180	156	1.00	0.16	1.45
	210	156	1.00	0.28	1.59
	250	156	1.00	0.48	1.82
3 	110	126	1.00	0.00	1.39
	130	158	1.00	0.00	1.45
	150	158	1.00	0.05	1.53
	180	158	1.00	0.16	1.66
	210	158	1.00	0.28	1.82
	250	158	1.00	0.47	2.07
4 	110	177	1.00	0.00	1.55
	130	221	1.00	0.00	1.60
	150	221	1.00	0.04	1.66
	180	221	1.00	0.12	1.77
	210	221	1.00	0.21	1.91
	250	221	1.00	0.35	2.11

Table 6 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Solar Mounting Systems

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Loads and Reactions

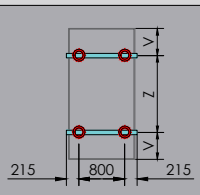
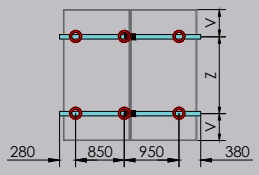
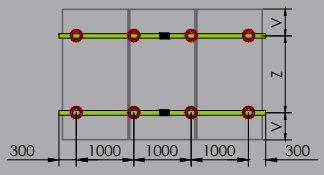
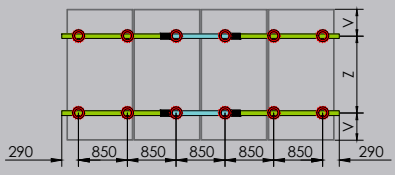
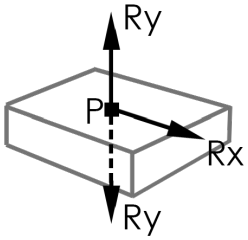
Maximum Admissible Loads and Reactions					35°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	173	1.00	0.00	0.81
	130	216	1.00	0.00	0.84
	150	216	1.00	0.05	0.88
	180	216	1.00	0.14	0.96
	210	216	1.00	0.24	1.05
	250	216	1.00	0.39	1.19
2 	110	135	1.00	0.00	1.02
	130	169	1.00	0.01	1.08
	150	169	1.00	0.07	1.14
	180	169	1.00	0.17	1.26
	210	169	1.00	0.29	1.40
	250	169	1.00	0.49	1.72
3 	110	137	1.00	0.00	1.17
	130	171	1.00	0.01	1.23
	150	171	1.00	0.06	1.31
	180	171	1.00	0.17	1.44
	210	171	1.00	0.29	1.60
	250	171	1.00	0.48	1.96
4 	110	193	1.00	0.00	1.30
	130	242	1.00	0.00	1.35
	150	242	1.00	0.05	1.42
	180	242	1.00	0.12	1.53
	210	242	1.00	0.21	1.66
	250	242	1.00	0.36	1.87

Table 7 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

SUNFER
Solar Mounting Systems

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Loads and Reactions

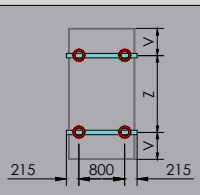
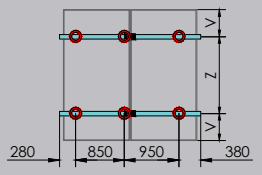
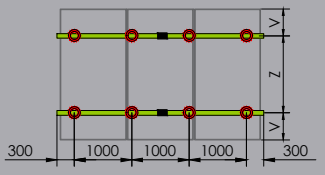
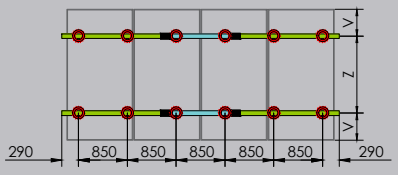
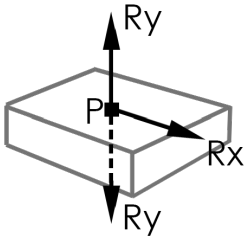
Maximum Admissible Loads and Reactions					40°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	204	1.00	0.00	0.68
	130	255	1.00	0.01	0.72
	150	255	1.00	0.06	0.76
	180	255	1.00	0.15	0.83
	210	255	1.00	0.25	0.91
	250	255	1.00	0.40	1.08
2 	110	159	1.00	0.00	0.87
	130	198	1.00	0.02	0.92
	150	198	1.00	0.08	0.98
	180	198	1.00	0.18	1.09
	210	198	1.00	0.31	1.22
	250	198	1.00	0.50	1.56
3 	110	161	1.00	0.00	1.00
	130	201	1.00	0.02	1.05
	150	201	1.00	0.08	1.12
	180	201	1.00	0.18	1.25
	210	201	1.00	0.30	1.40
	250	201	1.00	0.49	1.78
4 	110	228	1.00	0.00	1.10
	130	265	0.93	0.01	1.09
	150	265	0.93	0.06	1.15
	180	265	0.93	0.13	1.25
	210	265	0.93	0.22	1.37
	250	265	0.93	0.36	1.60

Table 8 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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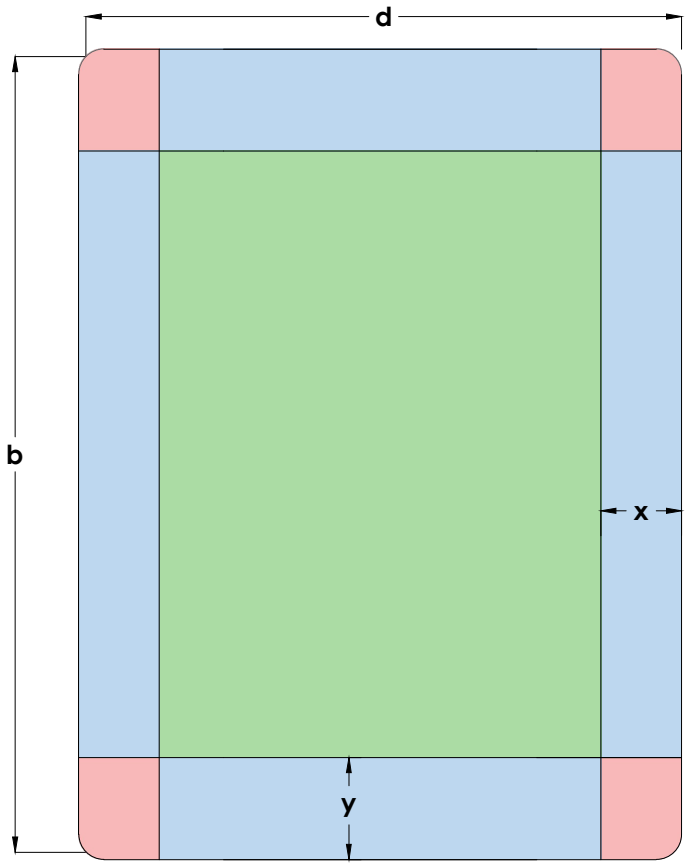
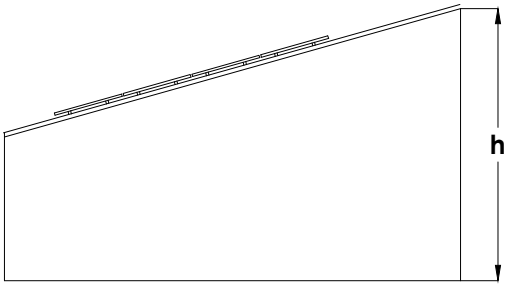
Installation Zone



e= Min [b,2h]

x = Max [e/10 , 0.5m]
y = Max [e/4 , 0.5m]



Installation Safe Zone

Turbulence Zone

Extreme Turbulence Zone

To avoid turbulence and other negative effects, PV panels must be installed inside of the green Safe Zone. PV panels must not be installed inside of the turbulent zones.

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Installation Video

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Solar Mounting Systems

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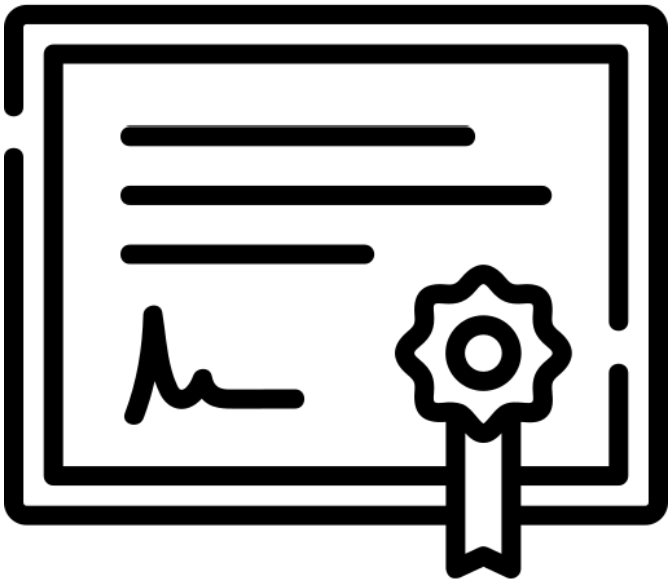
Certificates and Guarantee



- ISO 9001 Certified
- ISO 14001 Certified
- CE Marking
- Guaranteed

This is a translation of the certificate ES13/13899

The management system of

SUNFER ESTRUCTURAS, S.L.U.

Camí de la Dula, s/n, 46687 Albalat de la Ribera, Valencia

has been assessed and certified as meeting the requirements of

ISO 9001:2015

For the following activities
Design, manufacture and sale of solar energy structures.

This certificate is valid from 19 May 2023 until 8 April 2025 and remains valid subject to satisfactory surveillance audits.

Issue 6. Certified with SGS since 8 April 2013

Last certificate expiry date 8 April 2022
Recertification audit date 31 March 2022

Authorised by

SGS International Certification Services Iberica, S.A.U.
C/Trespaderne, 29. 28042 Madrid. España
t +34 91 313 8115 - www.sgs.com

This is a translation of the certificate ES22/211172

The management system of

SUNFER ESTRUCTURAS, S.L.U.

Camí de la Dula, s/n, 46687 Albalat de la Ribera, Valencia

has been assessed and certified as meeting the requirements of

ISO 14001:2015

For the following activities
Design, manufacture and sale of solar energy structures.

This certificate is valid from 19 May 2023 until 22 April 2025 and remains valid subject to satisfactory surveillance audits.

Issue 2. Certified with SGS since 22 April 2022

Authorised by

SGS International Certification Services Iberica, S.A.U.
C/Trespaderne, 29. 28042 Madrid. España
t +34 91 313 8115 - www.sgs.com

SUNFER

CE

IDENTIFICATION NUMBER OF NOTIFIED ORGANISM:

1181

NUMBER AND REGISTERED ADDRESS OF MANUFACTURERS. INSTALLATION LOCATION:

Business name: *SUNFER ESTRUCTURAS, S.L.U.*

Address: *Camí de la Dula s/n*

Postal Code: *46687*

Location: *Albalat de la Ribera*

City: *Valencia*

Country: *España*

TWO LAST DIGITS OF THE YEAR THAT THE MARKING WAS FIXED:

19

ES19/86524

EN 1090-1

Description of product: ***01V-EN***

TOLERANCES IN GEOMETRIC INFORMATION:	*EN 1090-3*
WELDABILITY:	*--*
FRACTURE RESISTANCE:	*--*
FIRE REACTION:	*Classified material A1*
CADMIUM EMISSION:	*N/A*
RADIACTIVITY EMISSION:	*N/A*
DURABILITY:	*N/A*

STRUCTURAL CHARACTERISTICS:

- **Carrying capacity:** *See product instructions and data sheet*
- **Fatigue resistance:** *N/A*
- **Fire resistance:** *N/A*
- **Manufacturing:** *According to the component specification and EN1090-3. Execution class EXC1*

DECLARATION OF PERFORMANCE NUMBER:	P-0114

1. PRODUCT DESCRIPTION.

UNIQUE IDENTIFICATION CODE OF THE PRODUCT TYPE:	01V-EN

2. NAME AND ADDRESS OF MANUFACTURER.

NAME:	SUNFER ESTRUCTURAS, S.L.U.
COMERCIAL NAME (if exists):	--
ADDRESS:	CAMI DE LA DULA S/N
CITY AND PC:	46687 ALBALAT DE LA RIBERA -- COMUNIDAD VALENCIANA (SPAIN)

3. INTENDED USE(S) OF THE PRODUCT:
ALUMINUM STRUCTURE TO SUPPORT PHOTOVOLTAIC PANELS.

4. SYSTEM OF EVALUATION AND VERIFICATION OF CONSTANCY OF PERFORMANCE:
System 2+

5. HARMONIZED STANDARD:
This product complies with the provisions of Annex ZA of the European standard **UNE-EN 1090-1:2011 + A1:2012**

6. NOTIFIED ORGANISM:

NAME:	**SGS ICS IBÉRICA. S.A.**
Notified Organism Number:	**NB1181**

7. DECLARED PERFORMANCES:

Essential Characteristics	Performances	Harmonised technical specifications
Tolerances in geometric information	Conforms to limits for essential tolerances□	EN 1090-3
Weldability	Not applicable because there is no welding in the structure	----
Fracture Tenacity	Not required for aluminum components	-----
Carrying Capacity	N/A	
Fatigue Resistance	N/A	
Fire Resistance	N/A	
Fire reaction	Class A1	EN 13501-1
Emission of cadmium and its compounds	OK	
Emission of radioactivity	OK	
Durability	N/A	
Structural features - Carrying capacity - Fatigue resistance: N/A - Fire resistance: N/A - Manufacturing	See product data sheet N/A N/A According to the component specification. Execution class EXC1	UNE EN 1999-1-1 UNE EN 1090-3

- The performance of the product identified above is in accordance with all the declared performance.
- This declaration of performance is issued in accordance with Regulation (EN) No. 305/2011 under the responsibility of the manufacturer identified above.

Manufacturer's Name: Voro Gómez Nacher
Date of issue: 02/08/2023
Signature:

Warranty Terms and Conditions

Structural and anti-corrosion warranty

The supports manufactured by SUNFER, are manufactured under strict production control in the factory as well as our raw materials that are tested and controlled periodically, so we can offer the following guarantee for our products

Structural guarantee of twenty-five (25) years.

Anti-corrosion guarantee according to table 1.

Materials	NON-HARSH environment (1) Distance to coastline Greater than 5 Km	HARSH or MARINE environment Distance to coastline Less than 5 Km
Raw Aluminium	Fifteen (15) years	Five (5) years
Anodized Aluminium	Twenty-five (25) years	Twenty-five (25) years

Table 1.

(1) Non-exhaustive list of zones considered to be harsh environments:

a. Industrial zones with emissions that include sulphur dioxide, nitrogen oxides, sulphuric acid, sulphuric compounds, chlorine, or other volatile gases; 5 km safety distance.
b. Electric generating stations that use the following fuels: coal, natural gas, petroleum: 5 km safety distance.
c. Petrochemical plants; 5 km safety distance.
d. Cellulose factories; 5 km safety distance
e. Wastewater treatment facilities: 500 m safety distance.

In these areas it is necessary to use anodised aluminium as long as the safety distance indicated above is not exceeded.

The adhesive warranty on 07.1H and S07.1 is ten (10) years. The warranty on the 2-sided adhesive tape of the S07.1 anchor covers the product supplied by Sunfer and can be applied provided that the breakage is caused by the profile tearing away from the adhesive tape. In the event that the breakage is caused by the adhesive tape tearing away from the cover, it will be considered a faulty assembly on site.

Mixed galvanised steel and raw aluminium supports such as, for example: Elevated, Monopoles, Car parks:
Environments C3 fifteen (15) years guarantee.
Environments C4-C5 five (5) years.

Mixed galvanised steel and anodised aluminium supports, such as: Elevated, Monopoles, Car parks:
Environments C3 guarantee twenty-five (25) years.
Environments C4-C5 fifteen (15) years.

This warranty applies to orders supplied from 03/01/2023, orders supplied prior to this date will be governed by the warranty document in force on the date of supply.

The warranty covers the final installation and therefore applies directly to the end user of the structure. In order to manage the warranties, the final customer will have to contact the distributor who has made the supply so that he can send it to the SUNFER Customer Service. The guarantee period starts from the date of the delivery note and it will be cancelled if the customer has not complied with the payment terms agreed in the invoice.

In order to execute the guarantee, the following documents must be sent:

- Sales invoice
- Date of commissioning.
- Details of the end customer.
- General photographs showing the entire installation.
- Detailed photographs:
  - o Fixing of the structure to the roof showing the distance between fixings.
  - o Assembled structure without photovoltaic modules.
  - o Rear view of the structure. Drawing of the affected area showing the distances between anchor points and distances between frames if applicable.

ES22/211172 ES13/13899

Marking CE ES19/86524

Coverage and exclusions

Coverage

This warranty covers the replacement and transport to the destination of the defective part or the product in its entirety free of charge. If the product is not available, a product of similar characteristics will be supplied.

The warranty is limited to the replacement of the defective product, so no costs associated with the return will be assumed: disassembly, as well as compensation for consequential damages, supplementary or related to loss of profits or other indirect costs.

The warranty covers all those metallic elements included in the SUNFER brackets.

Exclusions

The warranty does not cover any defects resulting from:

- Inadequate assembly due to not following the SUNFER installation manuals.
- Excessive or insufficient tightening torques.
- Modifications or installations other than those recommended by SUNFER.
- Installation of auxiliary elements other than the supports supplied by SUNFER.
- Improper handling of the product during installation.
- Inadequate handling of the goods. Damage to the product after the shipment, inadequate storage of the product.
- All those purely aesthetic defects that do not affect the structural safety of the product.
- Installations in locations where wind or snow loads exceed those indicated in the product data sheet.
- Inadequate maintenance, see MAINTENANCE MANUAL.
- Fire or exposure to temperatures above 110 °C.
- Problems or defects caused by pollutants not initially contemplated (1).
- Natural disasters such as earthquakes, floods, hurricanes, tornadoes, cyclones, landslides and avalanches, volcanic eruptions or earthquakes.

For those supports in which the fixation to the surface is not included, SUNFER will not be responsible in case of pulling out or collapse due to an insufficient or badly installed anchorage.

Guarantor, execution of Warranties.

The guarantor is SUNFER ESTRUCTURAS S.L.U., registered office at Camino de la Dula s/n 46687, Albalat de la Ribera,Valencia, Spain.

Claims arising in connection with this warranty cannot be transferred to third parties.

The law in force in Spain shall apply with regard to the warranty and any disputes relating to it.

SUNFER

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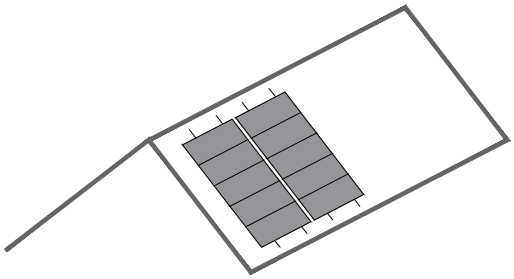
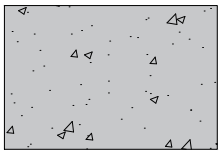
Landscape





Concrete Slab

Return

Sunfer Estructuras, S.L.U.
Camino de la Dula s/n
Albalat de la Ribera - 46687 (Valencia) Spain

100% ES19/86524 CE

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General Information and Recommendations ENG

- All installation instructions and product specifications provided must be adhered to.
- Check the condition of the roof covering and its carrying capacity. The management overseeing installation is responsible for verifying that the substructure of the roof as well as the static structure of the building itself is capable of supporting additional loads before any installation is carried out.
- To avoid turbulence from wind a minimum security distance (defined by regulations) must be maintained between the photovoltaic installations and roof edges, as well as other obstacles such as chimneys or vents.
- In the case of chimneys or other features which may need future maintenance, a minimum distance must be maintained in order to facilitate said maintenance or to extinguish fires. This distance shall be either 1m or that suggested by the relevant authority, whichever is greater.
- The surface of the roof covering must be clean and dry. Any major irregularities of the roof must be corrected or eliminated.
- The mounting must always be anchored to the structure of the roof.
- Check the weathertightness of the mount once fastened.
- Place solar panels such that they are distributed symmetrically along the support, leaving equal overhangs at each end.
- Clamps must not be tightened using impact drivers.
- Check that the support attachment points are compatible with the solar panel manufacturer's specifications.
- Uninstallation must be carried out in the reverse order from the installation.
- During the shipping of products take extreme care to maintain the integrity of the packaging. Store in a dry, well-ventilated area. Minimize exposure to large temperature differences and humidity. Avoid outdoor storage. Avoid sources of dripping water, puddles, splashing, or any other contact with water in the storage area. If the product becomes wet, immediately dry and clean as well as possible. Do not leave the product directly on the floor or ground where it may attract moisture. Store on the shipment's origninal pallet or on shelves.
- We reserve the right to make changes to our products at any moment without prior warning if, from our point of view, the changes are necessary for the improvement of the product. All illustrations in plans and catalogues are for example only and therefore may differ from the actual product provided.
- Aluminum components can be delivered in different finishes without compromising the structural solution. Available finishes: raw/anodised/lacquered.

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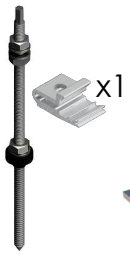
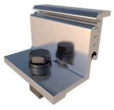
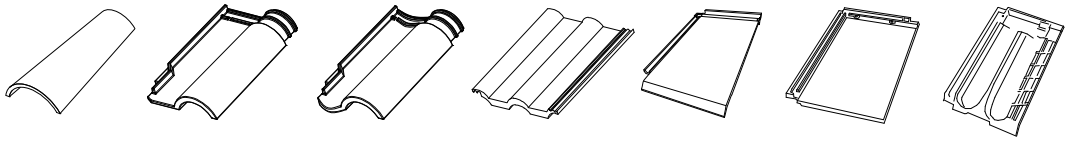
Kit Contents





	S01-EN	S10-EN	S11-EN	UG1-EN	G1-1230-EN	G1-1800-EN	TG1	S13
1	4	4	-	-	2	-	4	2
2	6	4	2	2	4	-	4	3
3	8	4	4	2	-	4	4	4
4	12	4	6	4	2	4	4	5



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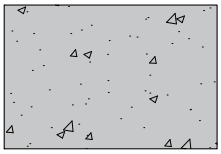
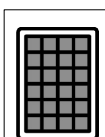


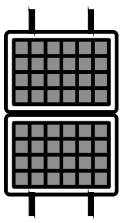
Concrete Slab

alu Profiles of **EN AW 6005A T6 aluminium**

A Fasteners of **A2-70 stainless steel**



Max.
2279x1150 mm
Thickness:
28-40 mm



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Landscape

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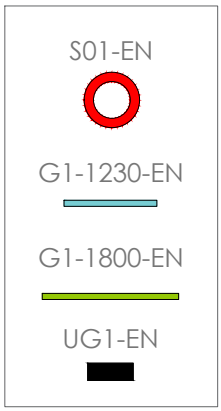
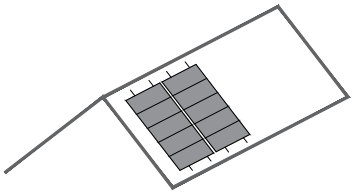
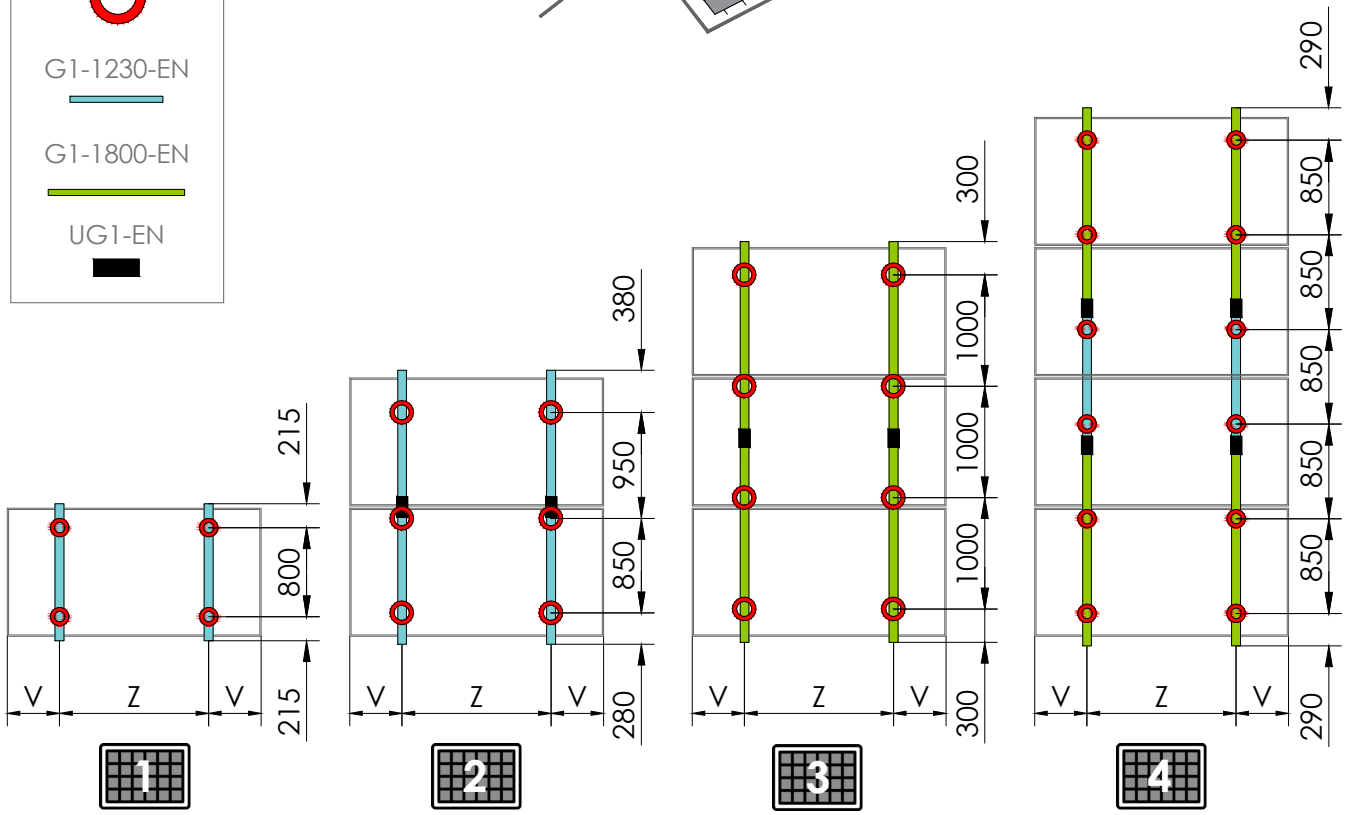
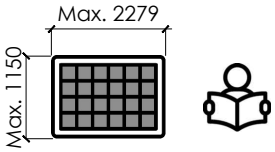
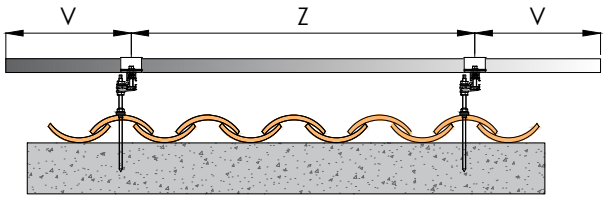
Anchor Spacing

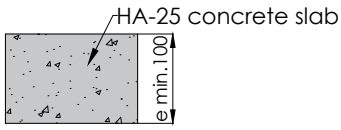












The maximum distance "Z" between profiles and the overhang "V" of the panel must be obtained from the technical datsheets of the panel manufacturer.

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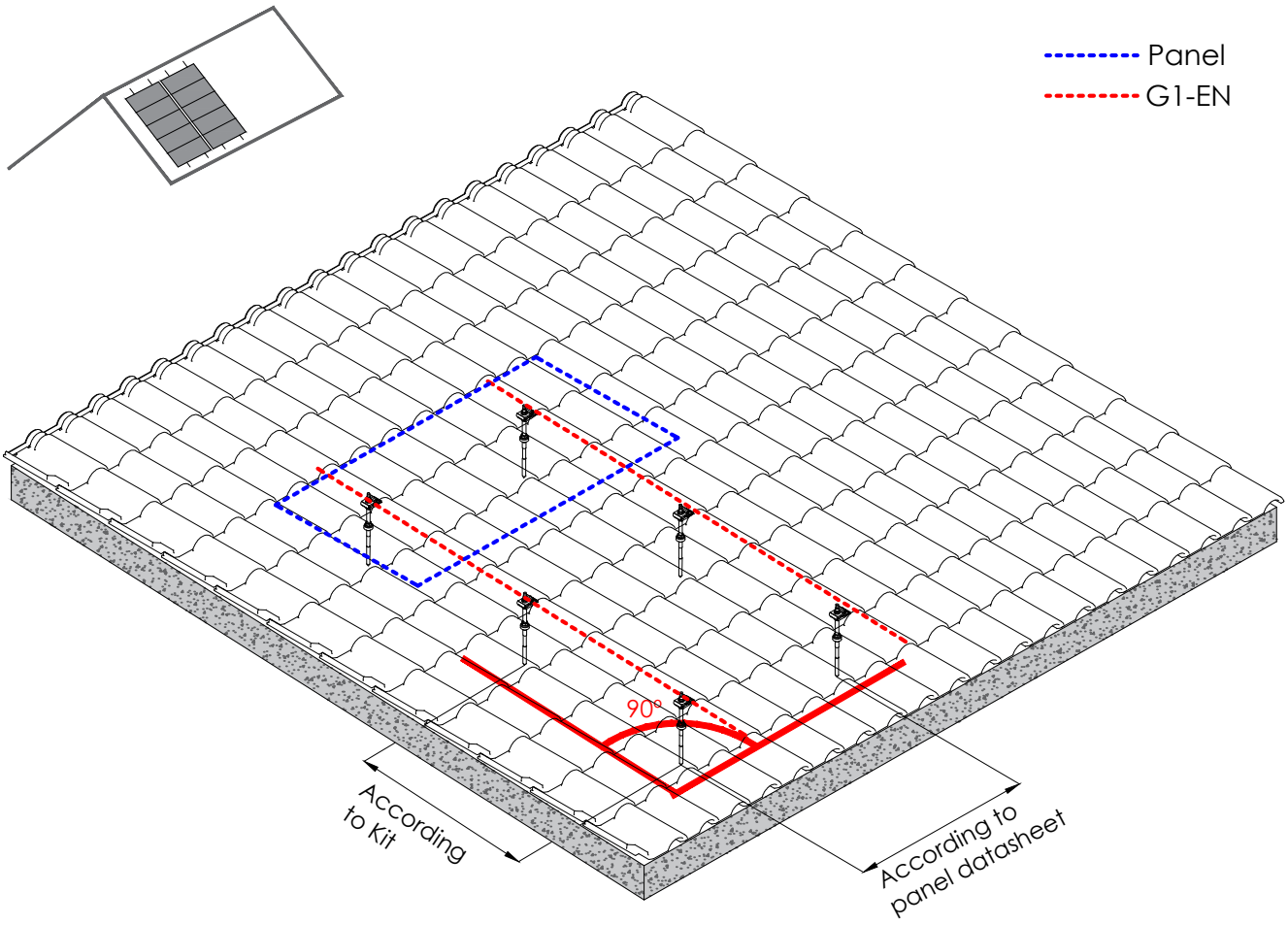
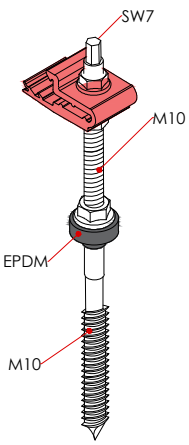
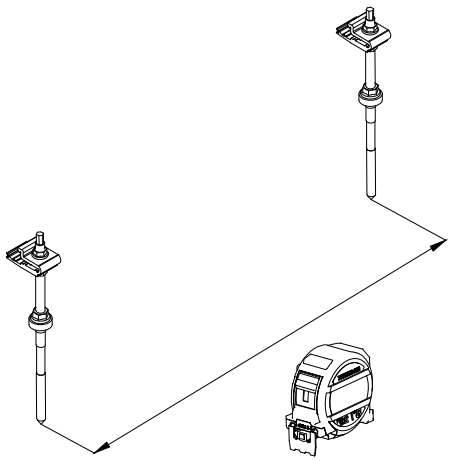
Structure Installation



Note
The "L" bracket must not be attached until the anchor has been fixed.





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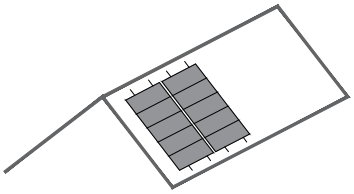

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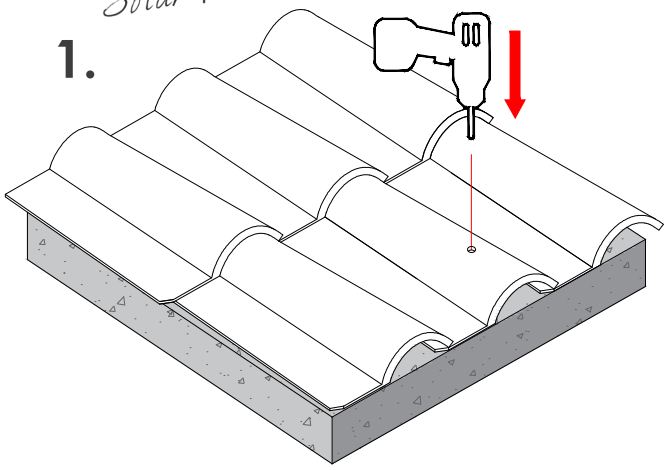

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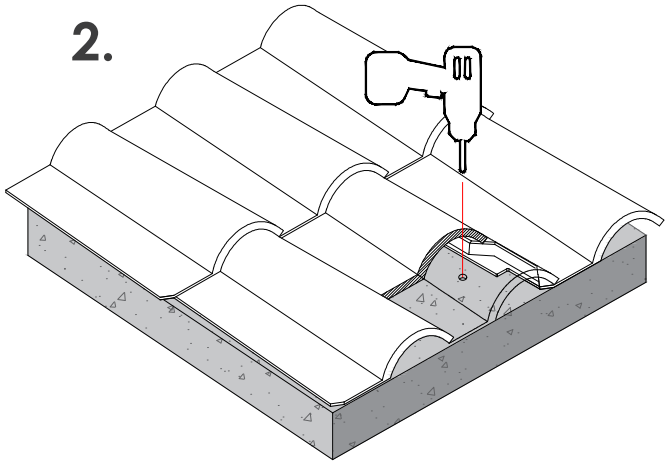

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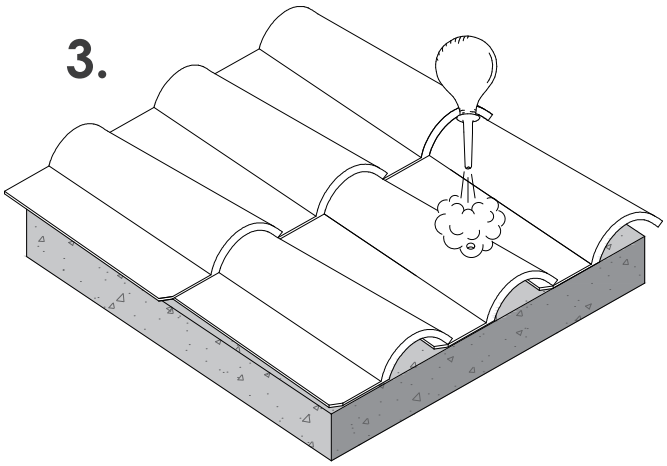

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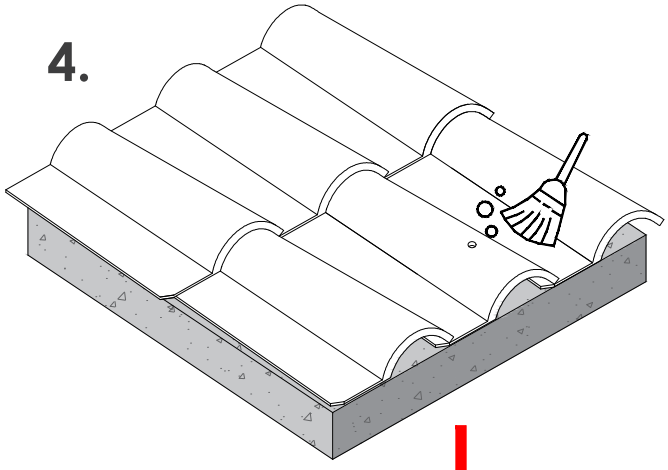

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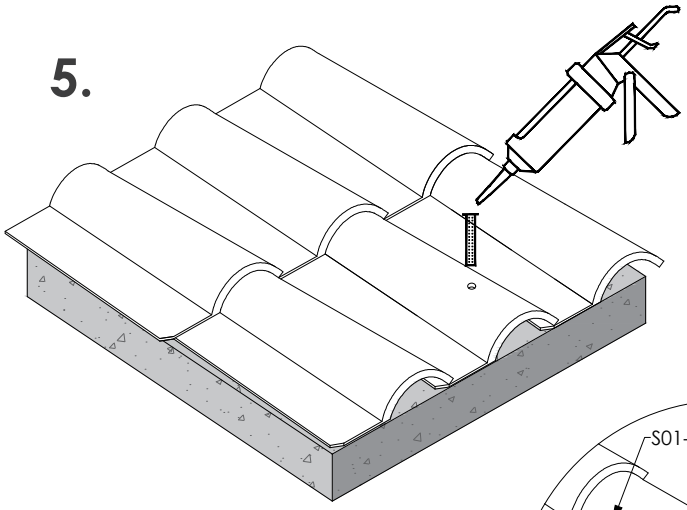

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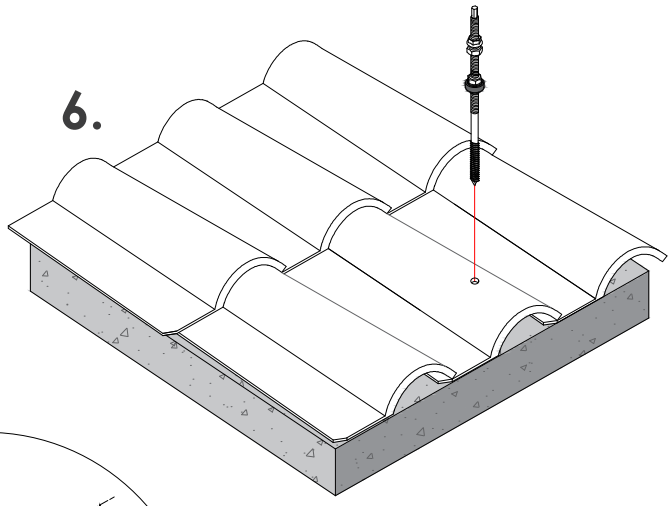

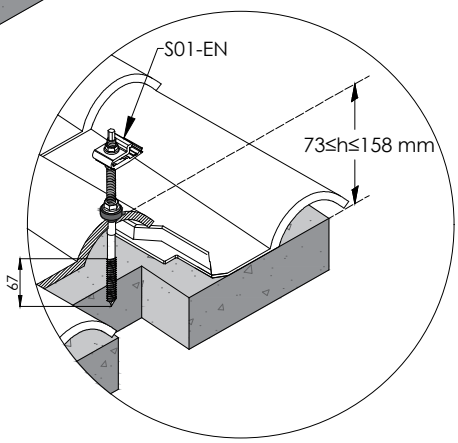

*Must withstand reactions at the attachment point

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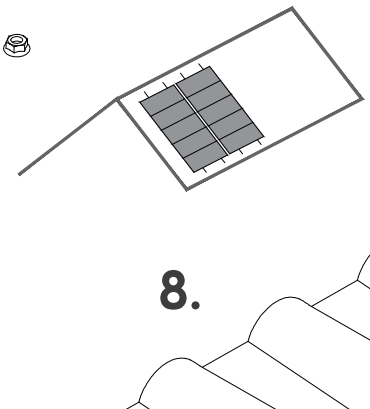

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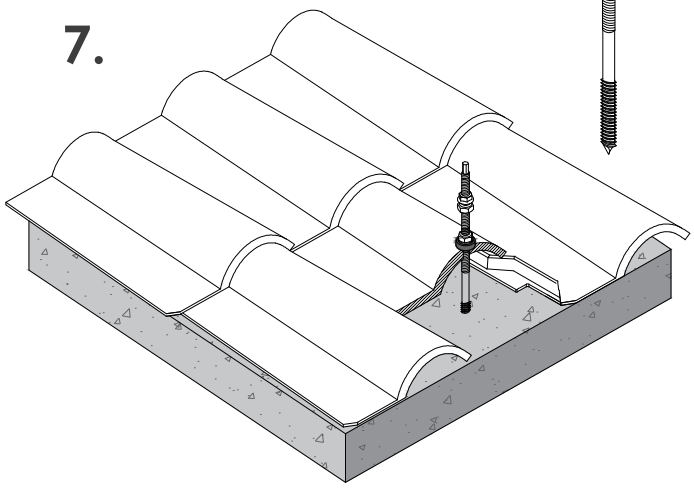

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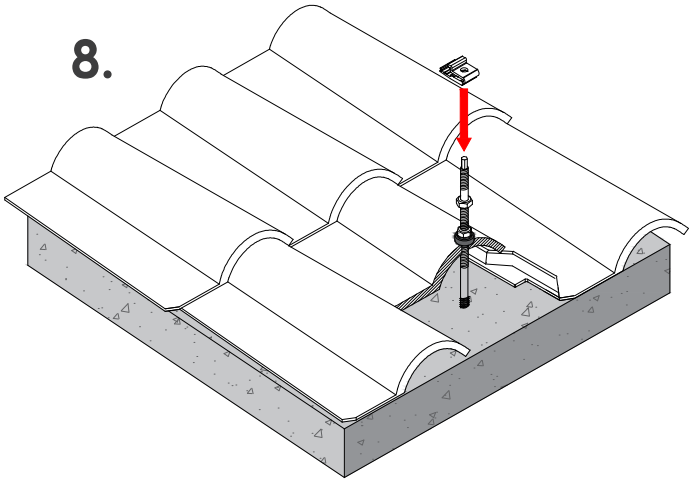

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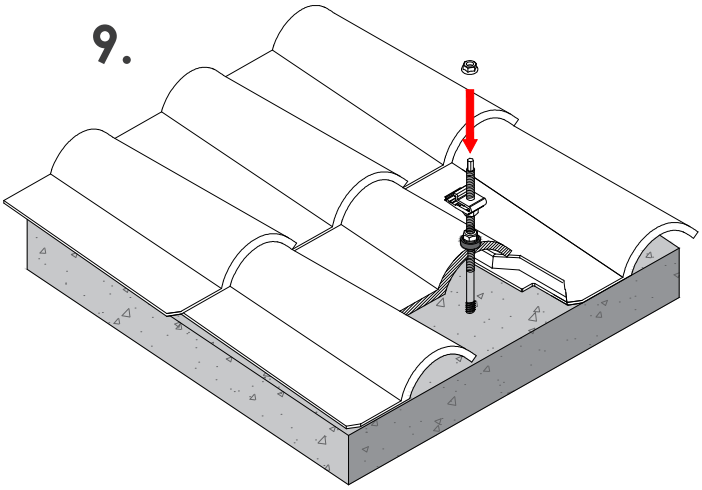

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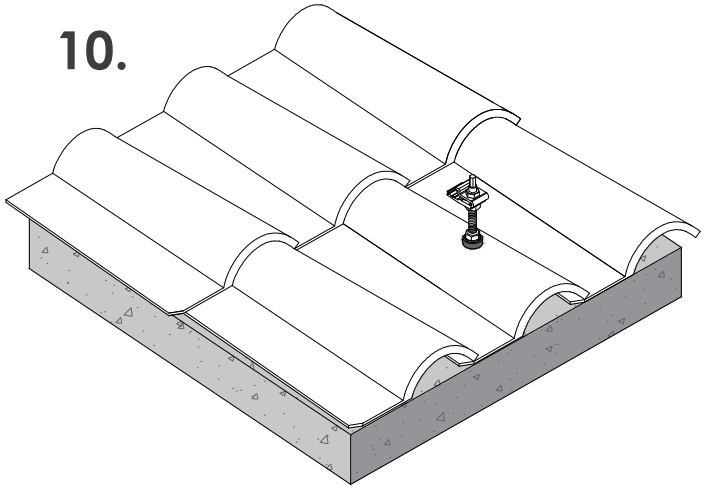

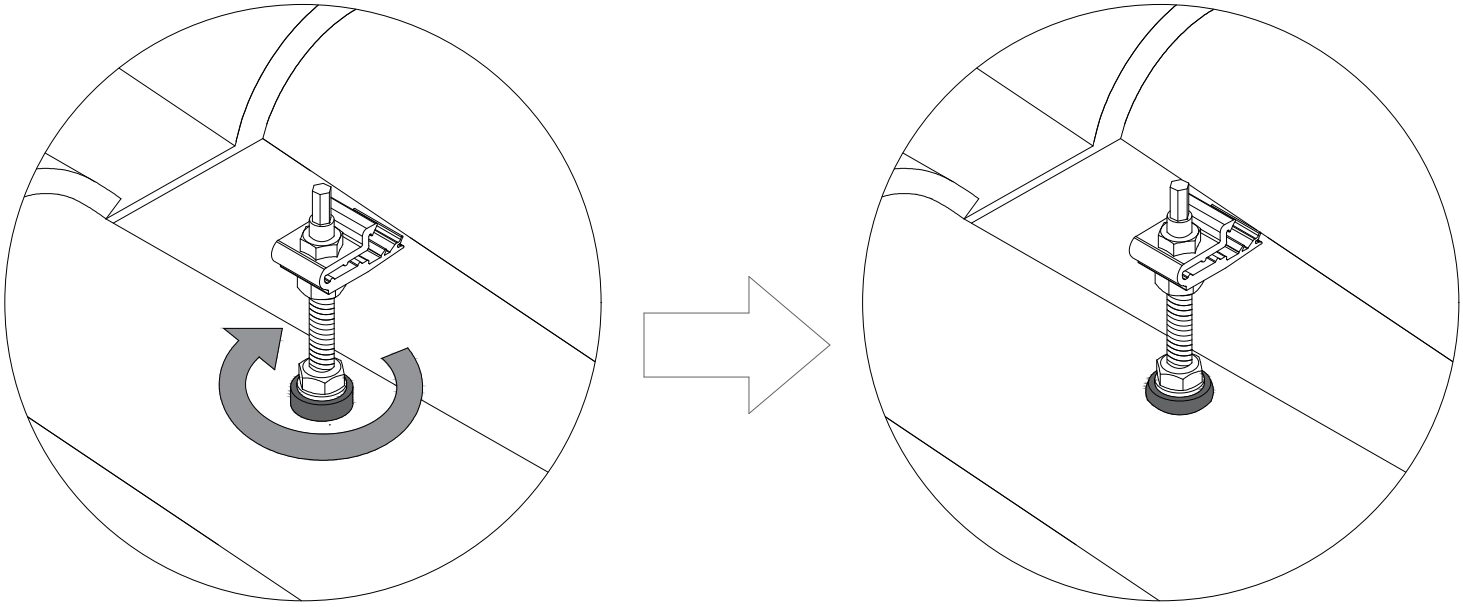

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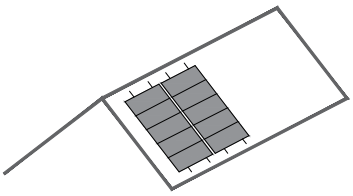

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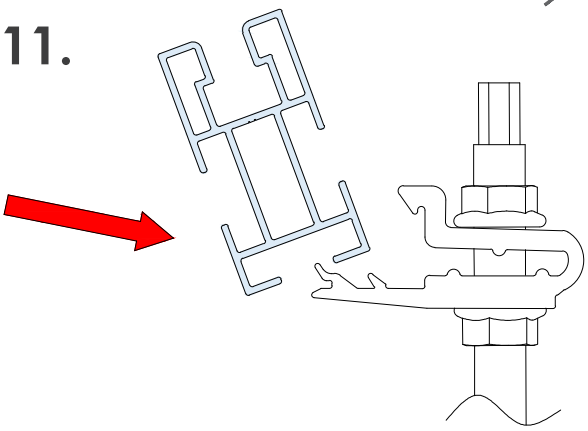

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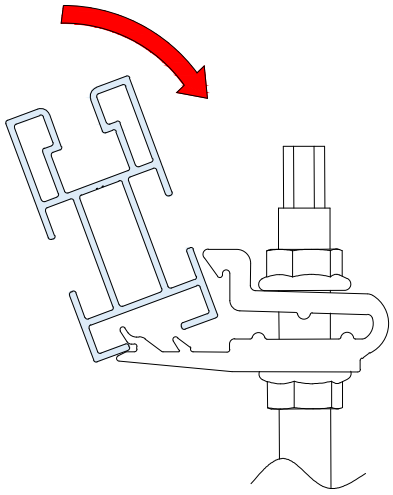

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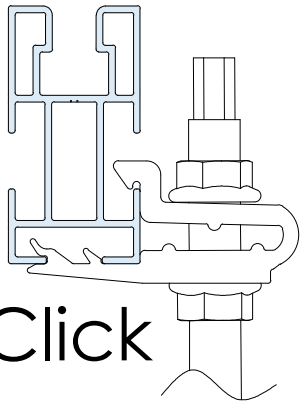
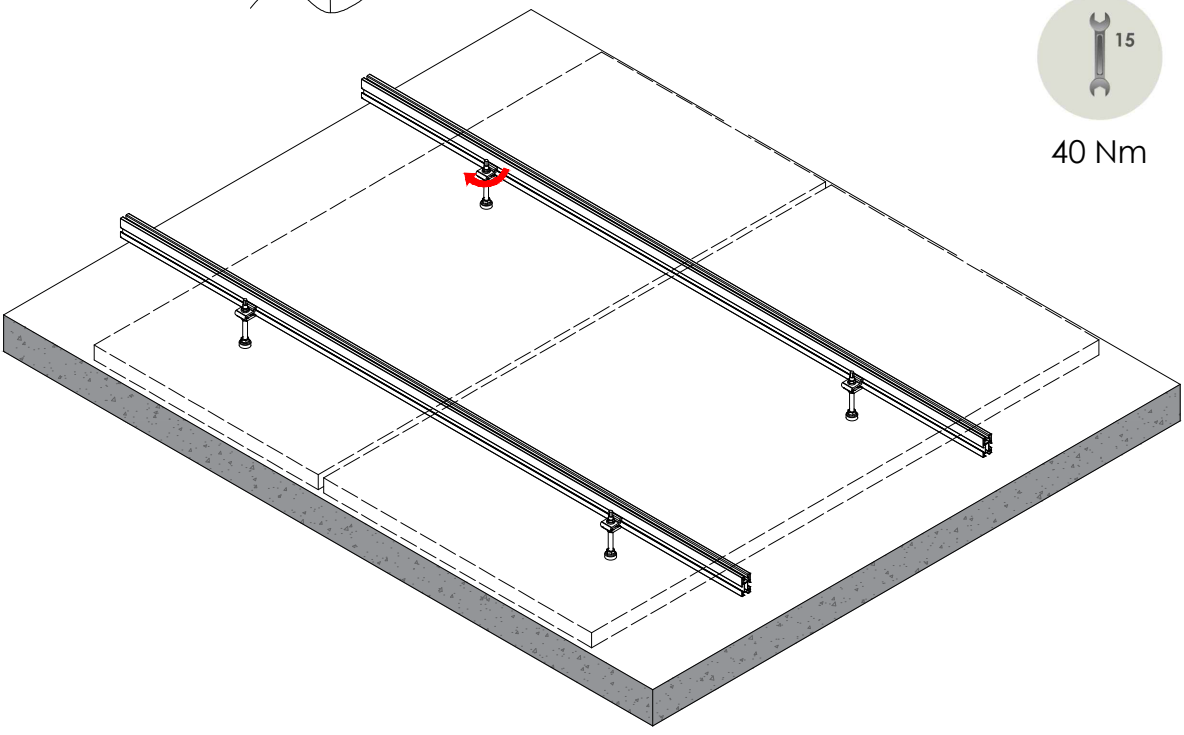


* Click



40 Nm

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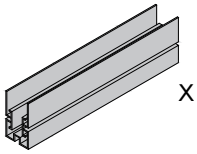
6 Nm

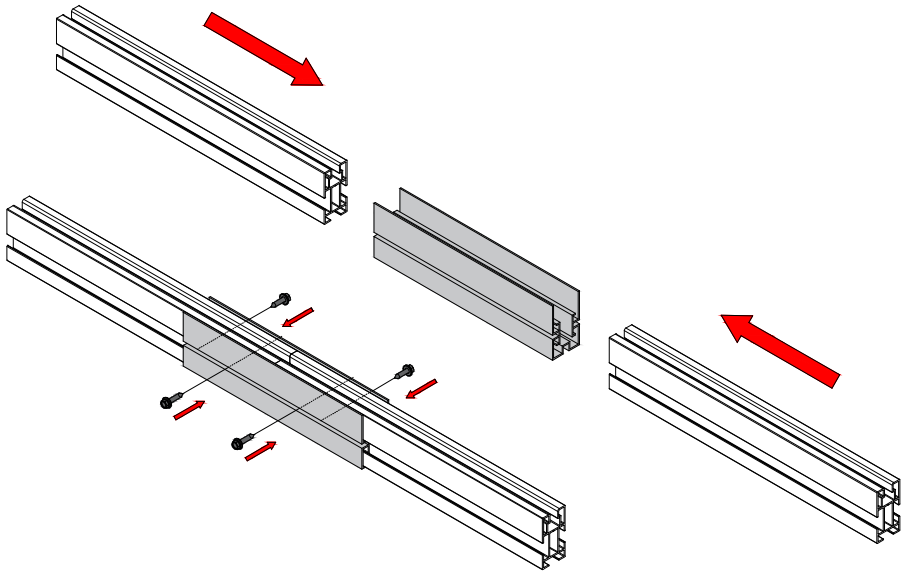
(x4)

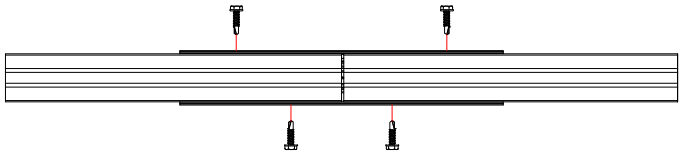
UG1-EN

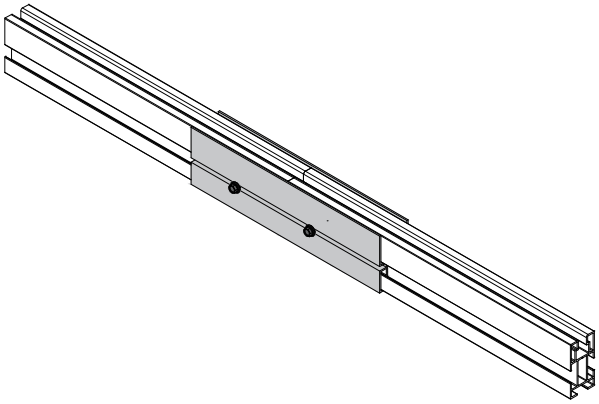


x1

x4







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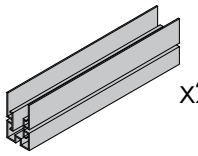
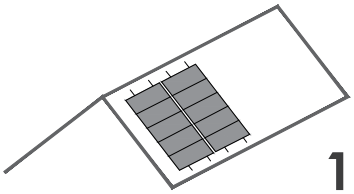
Joining Kit
Optional Step: To join two or more kits

S15-EN
Not included

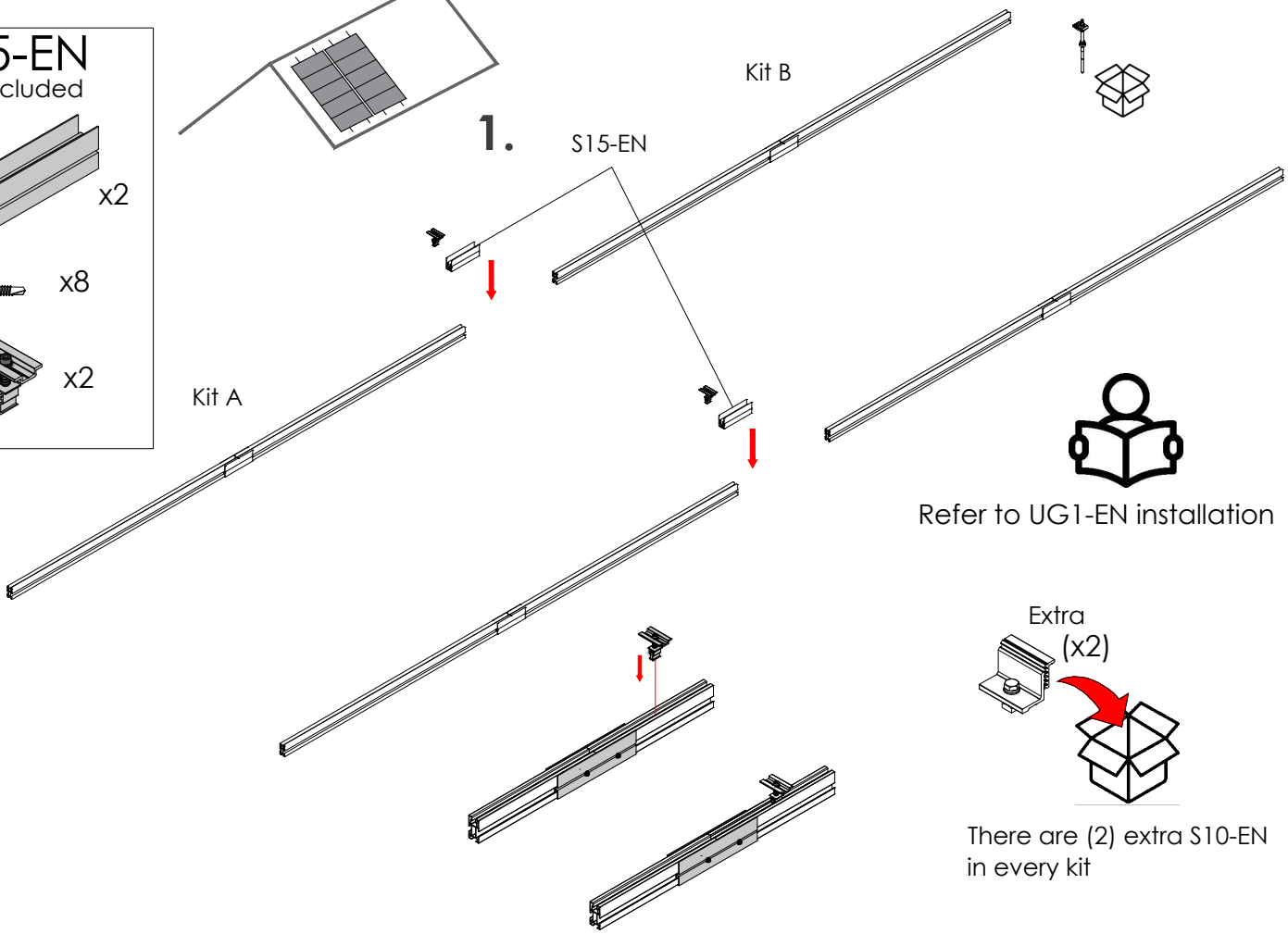

x2


x8


x2



1.



Refer to UG1-EN installation

Extra
(x2)

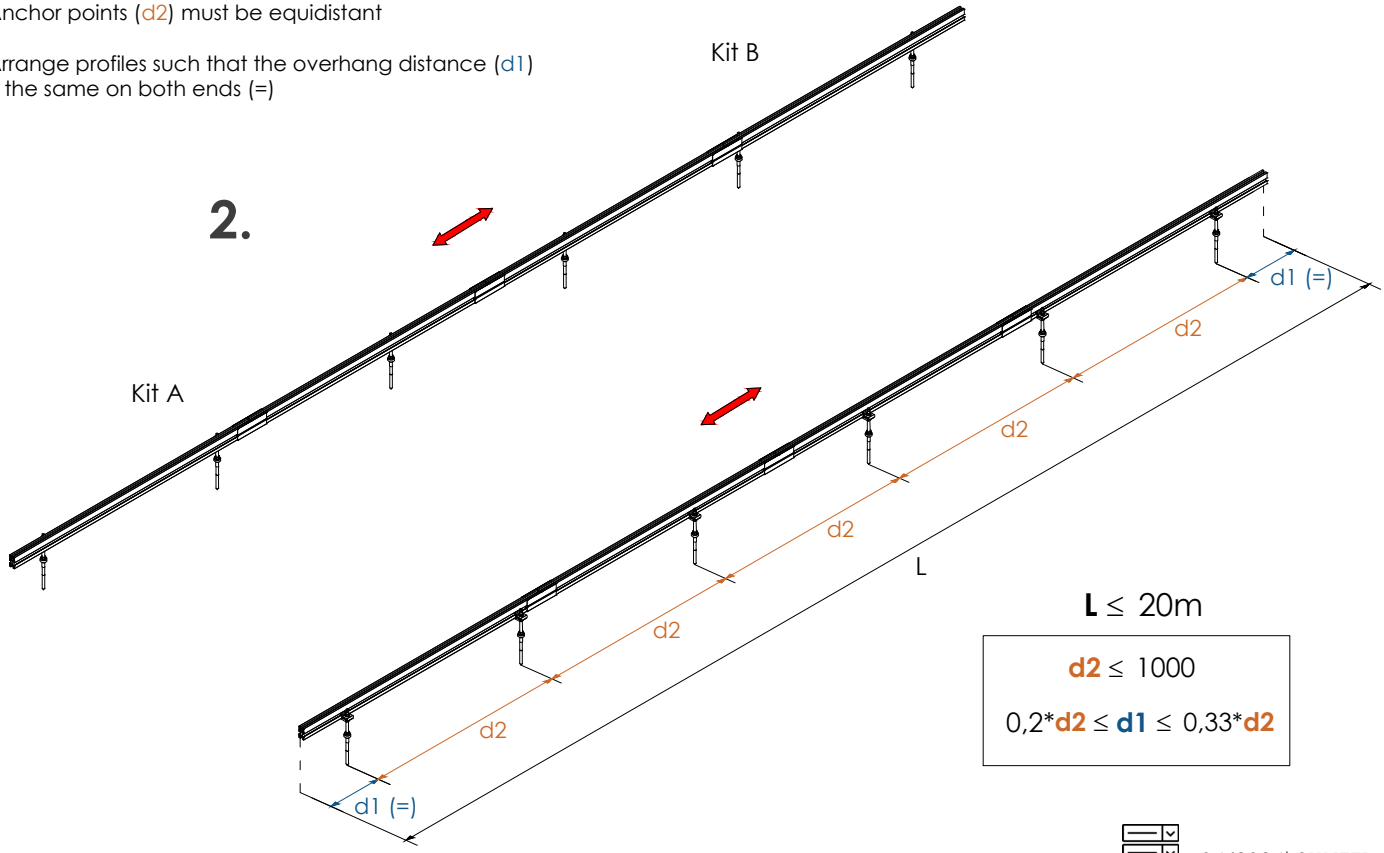
There are (2) extra S10-EN in every kit

Joining of kits:

Anchor points (d2) must be equidistant

Arrange profiles such that the overhang distance (d1) is the same on both ends (=)

2.



L ≤ 20m

d2 ≤ 1000

0,2***d2*** ≤ **d1** ≤ 0,33***d2***

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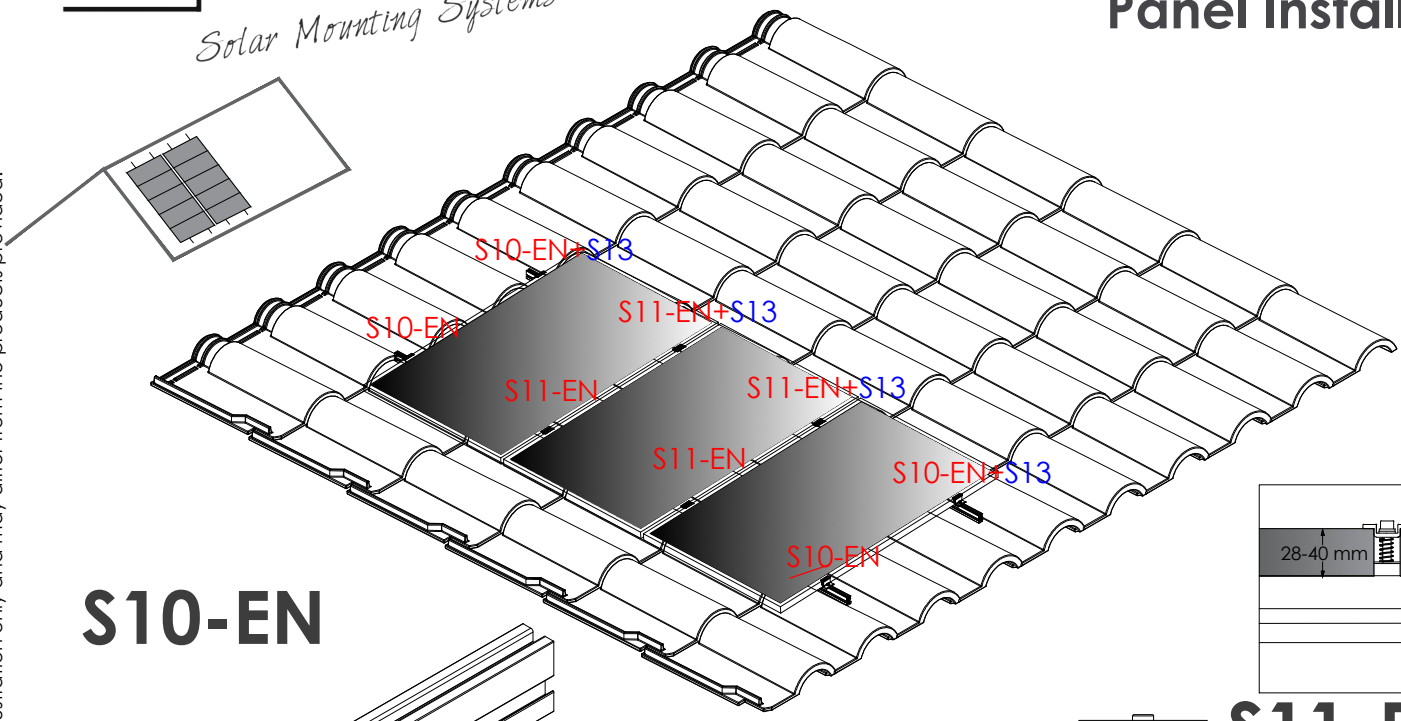
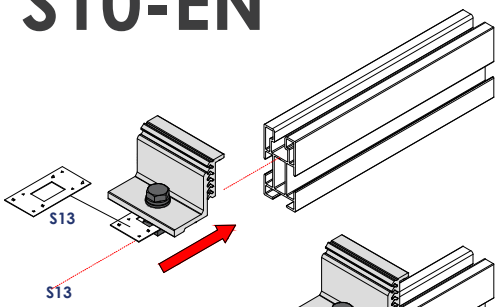
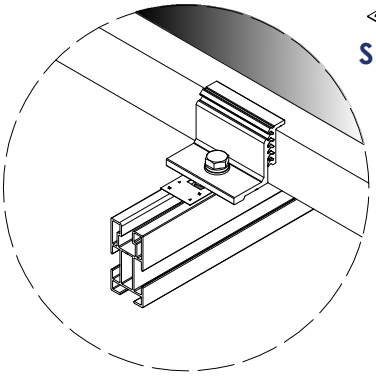
Panel Installation

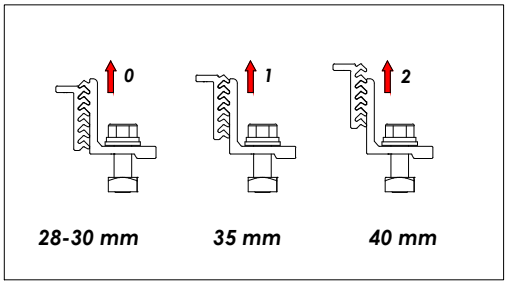


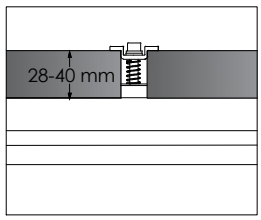
S10-EN



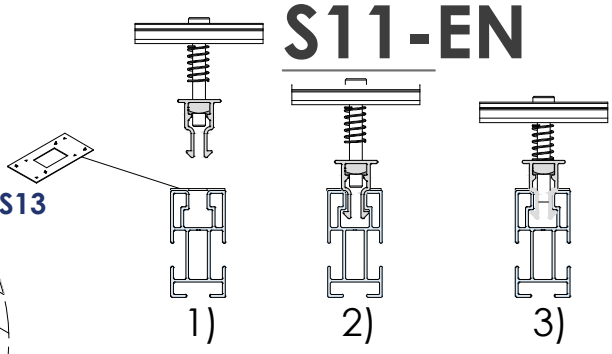
7 Nm



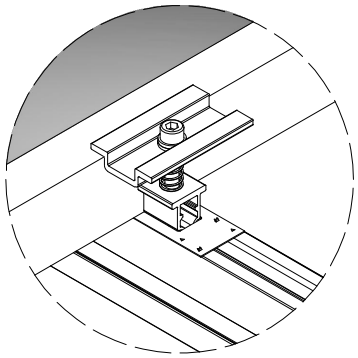


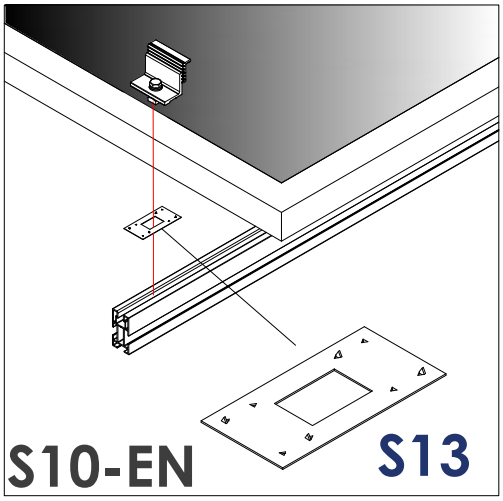


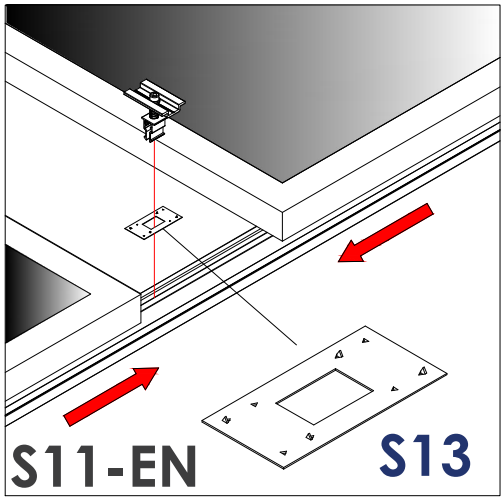
S11-EN

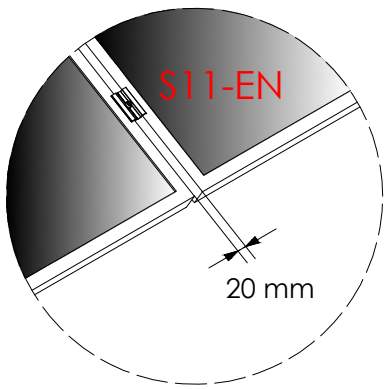


7 Nm









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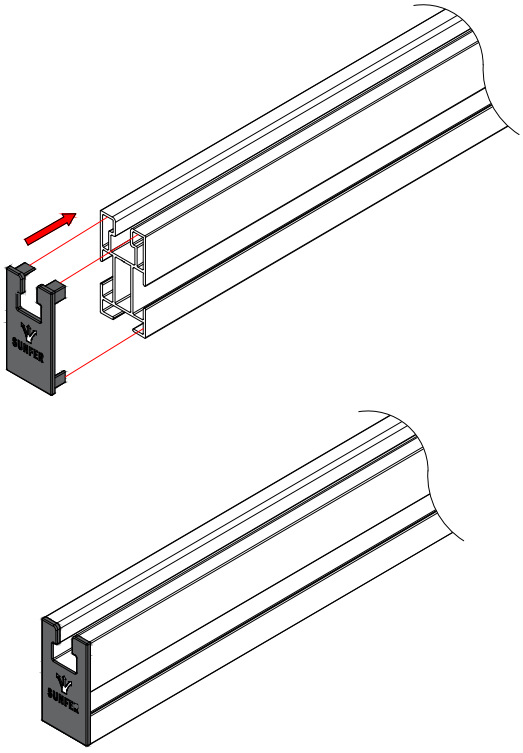
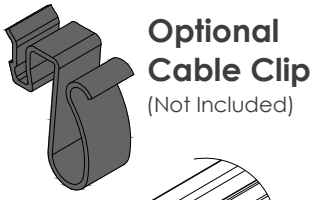
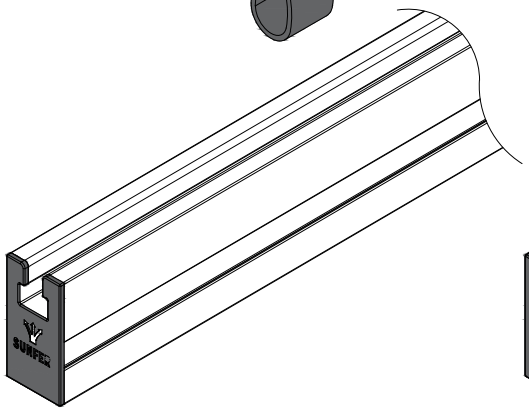
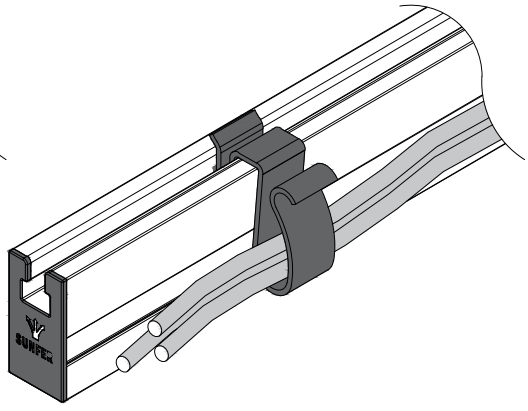




Optional
Cable Clip
(Not Included)





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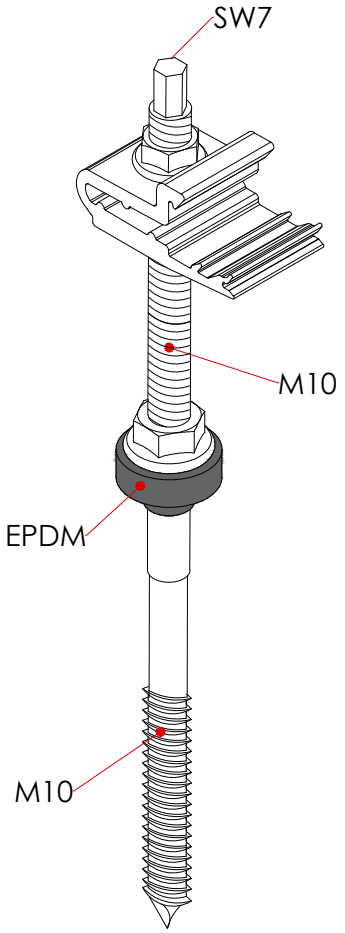
S01-EN
Technical Information: Anchor



Characteristics
Hexagonal Head.
A2-70 Stainless Steel.
Application Surfaces:
- Wood with a maximum density of 350 kg/m³. Wood type C24 or greater
- HA-25 Concrete Slab

Technical Specifications:
Screw Length: 250 mm.
Screw Diameter: 10 mm.
Pre-drill Diameter:
Wood: 7 mm
Concrete: See anchor datasheet

Yield Moment $M_{y,RK}$*
5.80 [kN.cm]

Tension and Compression Strengths*

K_{mod}=0.7	**Effective Embedment Depth** lef **[mm]**									
	40	**43**	**46**	**49**	**52**	**55**	**58**	**61**	**64**	**67**
N_{RK} [kN]	2.40	2.58	2.76	2.94	3.12	3.30	3.48	3.66	3.84	4.02

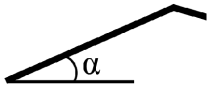
*Data valid for wood of C24 or greater

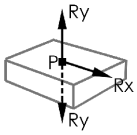
Description	Coplanar Support
Panel Disposition	Portrait/Landscape
Format	KIT of 1 to 4 panels
Joining Kit	S15-EN not included (optional)
Application Surface	Tile and Metal Sheet
Anchoring Surface	Concrete Slab and Wooden Beam
Type of Fastening	Screwed
Fastener	S01-EN
Profile	G1-EN
Grounding piece	S13
Maximum Panel Dimensions	2279x1150 mm
Panel Thickness	from 28 to 40 mm
Materials	Fasteners: A2-70 Stainless Steel Profiles: Raw or Anodized EN AW 6005A T6 Aluminium EPDM Weather Seal
Maximum Loads	According to Application
Structural Calculation	Computational models checked against EUROCODE 9 "Structures of Aluminium"

SUNFER
Solar Mounting Systems

01V-EN
Loads and Reactions

Maximum admissible loads and their reactions





5° Pitch

10° Pitch

15° Pitch

20° Pitch

25° Pitch

30° Pitch

35° Pitch

40° Pitch

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Solar Mounting Systems

01V-EN
Loads and Reactions

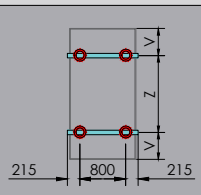
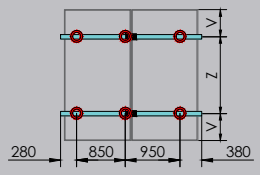
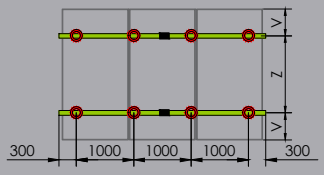
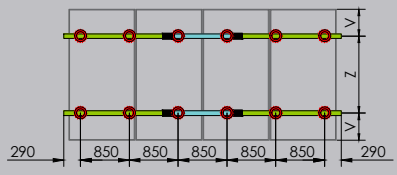
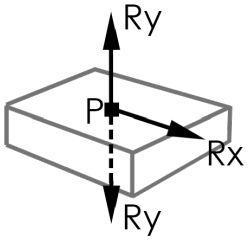
Maximum Admissible Loads and Reactions					5°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	265	0.32	0.00	1.86
	130	265	0.26	0.03	1.53
	150	265	0.26	0.10	1.54
	180	265	0.26	0.22	1.57
	210	265	0.26	0.36	1.60
	250	265	0.26	0.58	1.65
2 	110	220	0.33	0.00	2.40
	130	265	0.32	0.04	2.34
	150	265	0.32	0.12	2.36
	180	264	0.32	0.27	2.40
	210	258	0.31	0.44	2.40
	250	248	0.30	0.72	2.40
3 	110	191	0.29	0.00	2.40
	130	237	0.29	0.04	2.40
	150	234	0.28	0.12	2.40
	180	228	0.28	0.27	2.40
	210	222	0.27	0.44	2.40
	250	212	0.26	0.71	2.40
4 	110	229	0.25	0.00	2.40
	130	265	0.23	0.03	2.25
	150	265	0.23	0.09	2.27
	180	265	0.23	0.20	2.31
	210	265	0.23	0.32	2.36
	250	260	0.23	0.52	2.40

Table 1 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

SUNFER
Solar Mounting Systems

01V-EN
Loads and Reactions

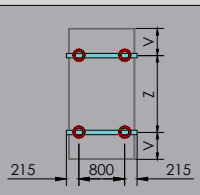
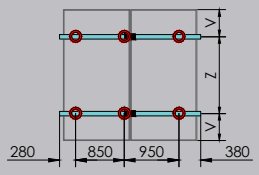
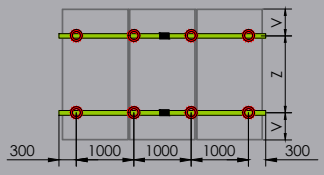
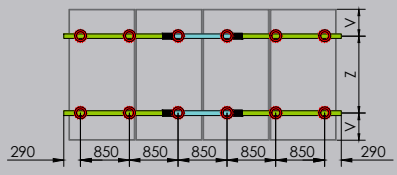
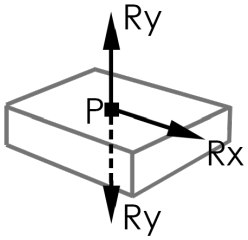
Maximum Admissible Loads and Reactions					10°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	265	0.63	0.00	1.82
	130	265	0.51	0.03	1.49
	150	265	0.51	0.10	1.51
	180	265	0.51	0.22	1.54
	210	265	0.51	0.36	1.57
	250	265	0.51	0.58	1.62
2 	110	225	0.67	0.00	2.40
	130	265	0.63	0.04	2.29
	150	265	0.63	0.13	2.31
	180	265	0.63	0.27	2.35
	210	264	0.63	0.45	2.40
	250	254	0.61	0.72	2.40
3 	110	196	0.58	0.00	2.40
	130	242	0.58	0.04	2.40
	150	239	0.57	0.12	2.40
	180	234	0.56	0.27	2.40
	210	227	0.54	0.44	2.40
	250	217	0.52	0.71	2.40
4 	110	235	0.51	0.00	2.40
	130	265	0.46	0.03	2.20
	150	265	0.46	0.09	2.23
	180	265	0.46	0.20	2.27
	210	265	0.46	0.32	2.31
	250	265	0.46	0.52	2.39

Table 2 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Solar Mounting Systems

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Loads and Reactions

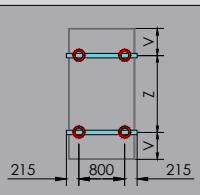
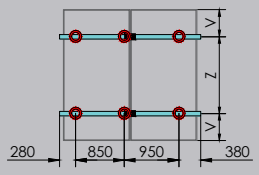
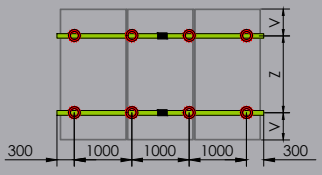
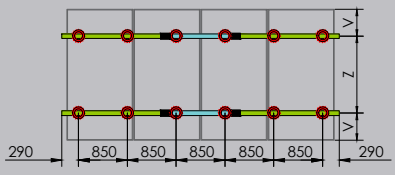
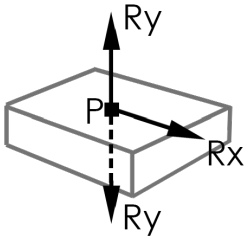
Maximum Admissible Loads and Reactions					15°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	265	0.92	0.02	1.78
	130	265	0.75	0.09	1.47
	150	265	0.75	0.18	1.50
	180	265	0.75	0.33	1.55
	210	265	0.75	0.51	1.61
	250	265	0.75	0.80	1.70
2 	110	229	1.00	0.03	2.38
	130	265	0.93	0.12	2.26
	150	265	0.93	0.22	2.30
	180	265	0.93	0.41	2.37
	210	257	0.90	0.64	2.40
	250	238	0.84	0.99	2.40
3 	110	200	0.87	0.03	2.40
	130	245	0.85	0.12	2.40
	150	240	0.84	0.22	2.40
	180	230	0.80	0.41	2.40
	210	218	0.76	0.63	2.40
	250	200	0.71	0.98	2.40
4 	110	240	0.76	0.02	2.40
	130	265	0.67	0.09	2.17
	150	265	0.67	0.16	2.21
	180	265	0.67	0.30	2.29
	210	265	0.67	0.46	2.37
	250	251	0.64	0.72	2.40

Table 3 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

SUNFER
Solar Mounting Systems

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Loads and Reactions

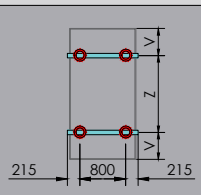
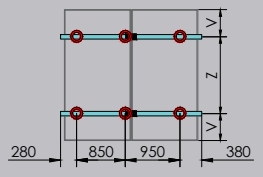
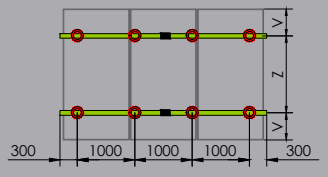
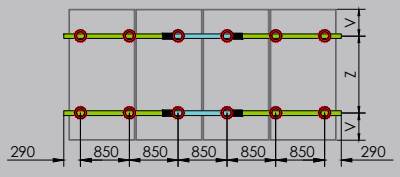
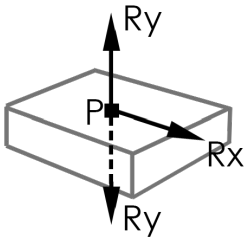
Maximum Admissible Loads and Reactions						20°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)	
1 	110	220	1.00	0.03	1.43
	130	265	0.96	0.10	1.40
	150	265	0.96	0.19	1.43
	180	265	0.96	0.34	1.48
	210	265	0.96	0.52	1.53
	250	265	0.96	0.80	1.62
2 	110	175	1.00	0.03	1.78
	130	218	1.00	0.12	1.81
	150	218	1.00	0.23	1.85
	180	218	1.00	0.42	1.93
	210	218	1.00	0.64	2.02
	250	218	1.00	0.99	2.15
3 	110	177	1.00	0.03	2.05
	130	221	1.00	0.12	2.09
	150	221	1.00	0.23	2.13
	180	221	1.00	0.41	2.22
	210	221	1.00	0.64	2.32
	250	212	0.96	0.98	2.40
4 	110	245	1.00	0.02	2.32
	130	265	0.87	0.09	2.07
	150	265	0.87	0.17	2.11
	180	265	0.87	0.31	2.18
	210	265	0.87	0.47	2.26
	250	265	0.87	0.72	2.39

Table 4 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Loads and Reactions

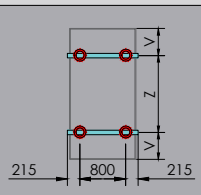
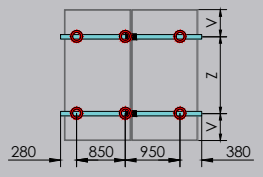
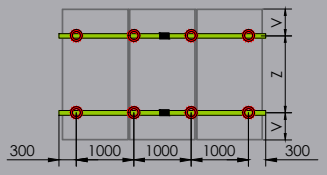
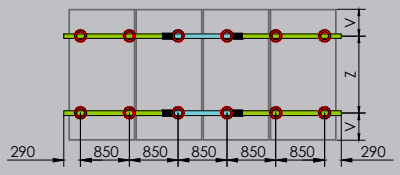
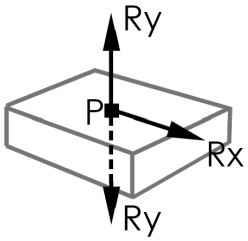
Maximum Admissible Loads and Reactions					25°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	182	1.00	0.03	1.13
	130	228	1.00	0.11	1.15
	150	228	1.00	0.19	1.18
	180	228	1.00	0.34	1.23
	210	228	1.00	0.52	1.28
	250	228	1.00	0.81	1.37
2 	110	144	1.00	0.04	1.41
	130	180	1.00	0.13	1.45
	150	180	1.00	0.24	1.49
	180	180	1.00	0.43	1.56
	210	180	1.00	0.65	1.65
	250	180	1.00	1.00	1.79
3 	110	145	1.00	0.04	1.62
	130	182	1.00	0.13	1.66
	150	182	1.00	0.23	1.71
	180	182	1.00	0.42	1.79
	210	182	1.00	0.64	1.89
	250	182	1.00	0.99	2.05
4 	110	203	1.00	0.03	1.83
	130	254	1.00	0.10	1.87
	150	254	1.00	0.17	1.91
	180	254	1.00	0.31	1.98
	210	254	1.00	0.47	2.06
	250	254	1.00	0.73	2.19

Table 5 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Solar Mounting Systems

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Loads and Reactions

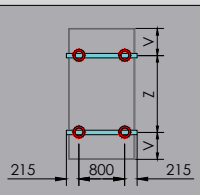
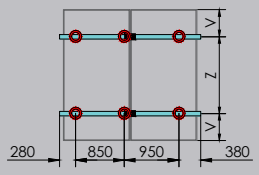
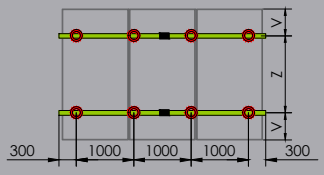
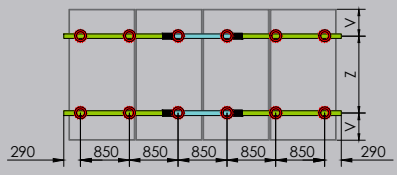
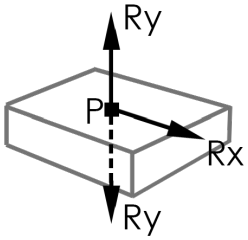
Maximum Admissible Loads and Reactions					30°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	159	1.00	0.00	0.96
	130	198	1.00	0.00	0.99
	150	198	1.00	0.04	1.03
	180	198	1.00	0.13	1.11
	210	198	1.00	0.23	1.20
	250	198	1.00	0.39	1.34
2 	110	125	1.00	0.00	1.21
	130	156	1.00	0.00	1.27
	150	156	1.00	0.06	1.33
	180	156	1.00	0.16	1.45
	210	156	1.00	0.28	1.59
	250	156	1.00	0.48	1.82
3 	110	126	1.00	0.00	1.39
	130	158	1.00	0.00	1.45
	150	158	1.00	0.05	1.53
	180	158	1.00	0.16	1.66
	210	158	1.00	0.28	1.82
	250	158	1.00	0.47	2.07
4 	110	177	1.00	0.00	1.55
	130	221	1.00	0.00	1.60
	150	221	1.00	0.04	1.66
	180	221	1.00	0.12	1.77
	210	221	1.00	0.21	1.91
	250	221	1.00	0.35	2.11

Table 6 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Loads and Reactions

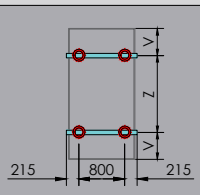
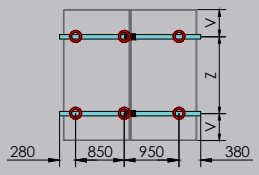
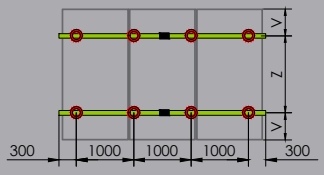
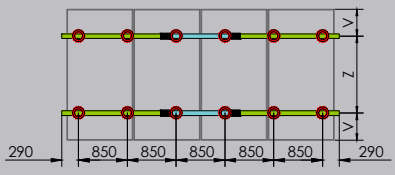
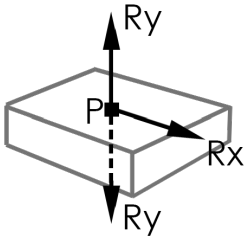
Maximum Admissible Loads and Reactions					35°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	173	1.00	0.00	0.81
	130	216	1.00	0.00	0.84
	150	216	1.00	0.05	0.88
	180	216	1.00	0.14	0.96
	210	216	1.00	0.24	1.05
	250	216	1.00	0.39	1.19
2 	110	135	1.00	0.00	1.02
	130	169	1.00	0.01	1.08
	150	169	1.00	0.07	1.14
	180	169	1.00	0.17	1.26
	210	169	1.00	0.29	1.40
	250	169	1.00	0.49	1.72
3 	110	137	1.00	0.00	1.17
	130	171	1.00	0.01	1.23
	150	171	1.00	0.06	1.31
	180	171	1.00	0.17	1.44
	210	171	1.00	0.29	1.60
	250	171	1.00	0.48	1.96
4 	110	193	1.00	0.00	1.30
	130	242	1.00	0.00	1.35
	150	242	1.00	0.05	1.42
	180	242	1.00	0.12	1.53
	210	242	1.00	0.21	1.66
	250	242	1.00	0.36	1.87

Table 7 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Solar Mounting Systems

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Loads and Reactions

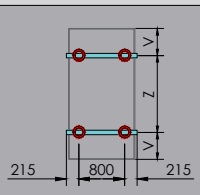
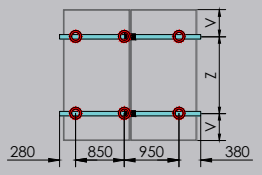
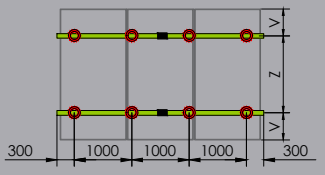
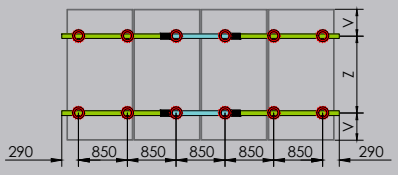
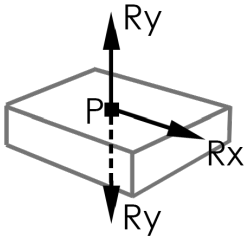
Maximum Admissible Loads and Reactions					40°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	204	1.00	0.00	0.68
	130	255	1.00	0.01	0.72
	150	255	1.00	0.06	0.76
	180	255	1.00	0.15	0.83
	210	255	1.00	0.25	0.91
	250	255	1.00	0.40	1.08
2 	110	159	1.00	0.00	0.87
	130	198	1.00	0.02	0.92
	150	198	1.00	0.08	0.98
	180	198	1.00	0.18	1.09
	210	198	1.00	0.31	1.22
	250	198	1.00	0.50	1.56
3 	110	161	1.00	0.00	1.00
	130	201	1.00	0.02	1.05
	150	201	1.00	0.08	1.12
	180	201	1.00	0.18	1.25
	210	201	1.00	0.30	1.40
	250	201	1.00	0.49	1.78
4 	110	228	1.00	0.00	1.10
	130	265	0.93	0.01	1.09
	150	265	0.93	0.06	1.15
	180	265	0.93	0.13	1.25
	210	265	0.93	0.22	1.37
	250	265	0.93	0.36	1.60

Table 8 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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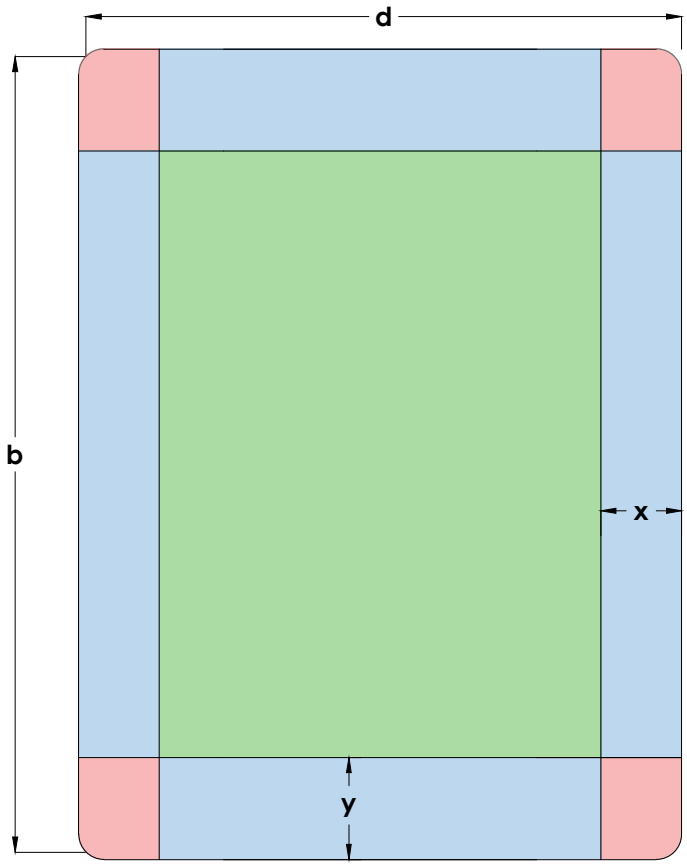
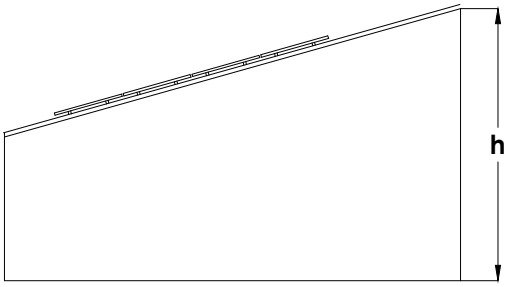
Installation Zone



e= Min [b,2h]

x = Max [e/10 , 0.5m]
y = Max [e/4 , 0.5m]



Installation Safe Zone

Turbulence Zone

Extreme Turbulence Zone

To avoid turbulence and other negative effects, PV panels must be installed inside of the green Safe Zone. PV panels must not be installed inside of the turbulent zones.

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Installation Video

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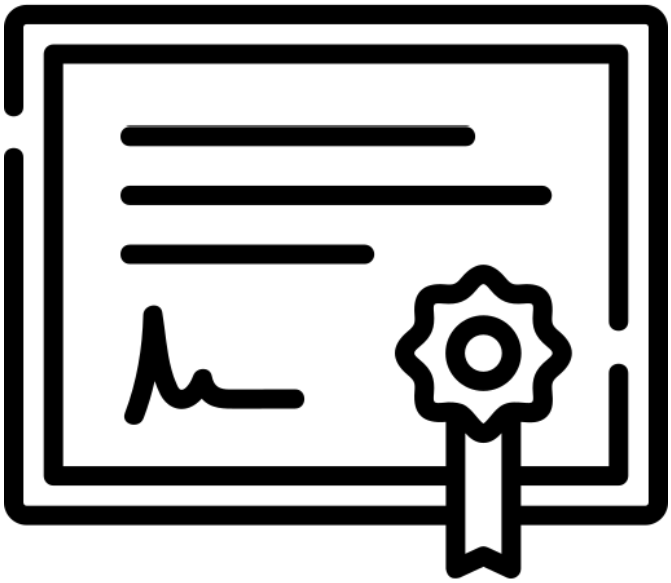
Certificates and Guarantee



- ISO 9001 Certified
- ISO 14001 Certified
- CE Marking
- Guaranteed

This is a translation of the certificate ES13/13899

The management system of

SUNFER ESTRUCTURAS, S.L.U.

Camí de la Dula, s/n, 46687 Albalat de la Ribera, Valencia

has been assessed and certified as meeting the requirements of

ISO 9001:2015

For the following activities
Design, manufacture and sale of solar energy structures.

This certificate is valid from 19 May 2023 until 8 April 2025 and remains valid subject to satisfactory surveillance audits.

Issue 6. Certified with SGS since 8 April 2013

Last certificate expiry date 8 April 2022
Recertification audit date 31 March 2022

Authorised by

SGS International Certification Services Iberica, S.A.U.
C/Trespaderne, 29. 28042 Madrid. España
t +34 91 313 8115 - www.sgs.com

This is a translation of the certificate ES22/211172

The management system of

SUNFER ESTRUCTURAS, S.L.U.

Camí de la Dula, s/n, 46687 Albalat de la Ribera, Valencia

has been assessed and certified as meeting the requirements of

ISO 14001:2015

For the following activities
Design, manufacture and sale of solar energy structures.

This certificate is valid from 19 May 2023 until 22 April 2025 and remains valid subject to satisfactory surveillance audits.

Issue 2. Certified with SGS since 22 April 2022

Authorised by

SGS International Certification Services Iberica, S.A.U.
C/Trespaderne, 29. 28042 Madrid. España
t +34 91 313 8115 - www.sgs.com

SUNFER

CE

IDENTIFICATION NUMBER OF NOTIFIED ORGANISM:

1181

NUMBER AND REGISTERED ADDRESS OF MANUFACTURERS. INSTALLATION LOCATION:

Business name: *SUNFER ESTRUCTURAS, S.L.U.*

Address: *Camí de la Dula s/n*

Postal Code: *46687*

Location: *Albalat de la Ribera*

City: *Valencia*

Country: *España*

TWO LAST DIGITS OF THE YEAR THAT THE MARKING WAS FIXED:

19

ES19/86524

EN 1090-1

Description of product: ***01V-EN***

TOLERANCES IN GEOMETRIC INFORMATION:	*EN 1090-3*
WELDABILITY:	*--*
FRACTURE RESISTANCE:	*--*
FIRE REACTION:	*Classified material A1*
CADMIUM EMISSION:	*N/A*
RADIACTIVITY EMISSION:	*N/A*
DURABILITY:	*N/A*

STRUCTURAL CHARACTERISTICS:

- **Carrying capacity:** *See product instructions and data sheet*
- **Fatigue resistance:** *N/A*
- **Fire resistance:** *N/A*
- **Manufacturing:** *According to the component specification and EN1090-3. Execution class EXC1*

DECLARATION OF PERFORMANCE NUMBER:	P-0114

1. PRODUCT DESCRIPTION.

UNIQUE IDENTIFICATION CODE OF THE PRODUCT TYPE:	01V-EN

2. NAME AND ADDRESS OF MANUFACTURER.

NAME:	SUNFER ESTRUCTURAS, S.L.U.
COMERCIAL NAME (if exists):	--
ADDRESS:	CAMI DE LA DULA S/N
CITY AND PC:	46687 ALBALAT DE LA RIBERA -- COMUNIDAD VALENCIANA (SPAIN)

3. INTENDED USE(S) OF THE PRODUCT:
ALUMINUM STRUCTURE TO SUPPORT PHOTOVOLTAIC PANELS.

4. SYSTEM OF EVALUATION AND VERIFICATION OF CONSTANCY OF PERFORMANCE:
System 2+

5. HARMONIZED STANDARD:
This product complies with the provisions of Annex ZA of the European standard **UNE-EN 1090-1:2011 + A1:2012**

6. NOTIFIED ORGANISM:

NAME:	**SGS ICS IBÉRICA. S.A.**
Notified Organism Number:	**NB1181**

7. DECLARED PERFORMANCES:

Essential Characteristics	Performances	Harmonised technical specifications
Tolerances in geometric information	Conforms to limits for essential tolerances□	EN 1090-3
Weldability	Not applicable because there is no welding in the structure	----
Fracture Tenacity	Not required for aluminum components	-----
Carrying Capacity	N/A	
Fatigue Resistance	N/A	
Fire Resistance	N/A	
Fire reaction	Class A1	EN 13501-1
Emission of cadmium and its compounds	OK	
Emission of radioactivity	OK	
Durability	N/A	
Structural features - Carrying capacity - Fatigue resistance: N/A - Fire resistance: N/A - Manufacturing	See product data sheet N/A N/A According to the component specification. Execution class EXC1	UNE EN 1999-1-1 UNE EN 1090-3

- The performance of the product identified above is in accordance with all the declared performance.
- This declaration of performance is issued in accordance with Regulation (EN) No. 305/2011 under the responsibility of the manufacturer identified above.

Manufacturer's Name: Voro Gómez Nacher
Date of issue: 02/08/2023
Signature:

Warranty Terms and Conditions

Structural and anti-corrosion warranty

The supports manufactured by SUNFER, are manufactured under strict production control in the factory as well as our raw materials that are tested and controlled periodically, so we can offer the following guarantee for our products

Structural guarantee of twenty-five (25) years.

Anti-corrosion guarantee according to table 1.

Materials	NON-HARSH environment (1) Distance to coastline Greater than 5 Km	HARSH or MARINE environment Distance to coastline Less than 5 Km
Raw Aluminium	Fifteen (15) years	Five (5) years
Anodized Aluminium	Twenty-five (25) years	Twenty-five (25) years

Table 1.

(1) Non-exhaustive list of zones considered to be harsh environments:

a. Industrial zones with emissions that include sulphur dioxide, nitrogen oxides, sulphuric acid, sulphuric compounds, chlorine, or other volatile gases; 5 km safety distance.
b. Electric generating stations that use the following fuels: coal, natural gas, petroleum: 5 km safety distance.
c. Petrochemical plants; 5 km safety distance.
d. Cellulose factories; 5 km safety distance
e. Wastewater treatment facilities: 500 m safety distance.

In these areas it is necessary to use anodised aluminium as long as the safety distance indicated above is not exceeded.

The adhesive warranty on 07.1H and S07.1 is ten (10) years. The warranty on the 2-sided adhesive tape of the S07.1 anchor covers the product supplied by Sunfer and can be applied provided that the breakage is caused by the profile tearing away from the adhesive tape. In the event that the breakage is caused by the adhesive tape tearing away from the cover, it will be considered a faulty assembly on site.

Mixed galvanised steel and raw aluminium supports such as, for example: Elevated, Monopoles, Car parks:
Environments C3 fifteen (15) years guarantee.
Environments C4-C5 five (5) years.

Mixed galvanised steel and anodised aluminium supports, such as: Elevated, Monopoles, Car parks:
Environments C3 guarantee twenty-five (25) years.
Environments C4-C5 fifteen (15) years.

This warranty applies to orders supplied from 03/01/2023, orders supplied prior to this date will be governed by the warranty document in force on the date of supply.

The warranty covers the final installation and therefore applies directly to the end user of the structure. In order to manage the warranties, the final customer will have to contact the distributor who has made the supply so that he can send it to the SUNFER Customer Service. The guarantee period starts from the date of the delivery note and it will be cancelled if the customer has not complied with the payment terms agreed in the invoice.

In order to execute the guarantee, the following documents must be sent:

- Sales invoice
- Date of commissioning.
- Details of the end customer.
- General photographs showing the entire installation.
- Detailed photographs:
  - o Fixing of the structure to the roof showing the distance between fixings.
  - o Assembled structure without photovoltaic modules.
  - o Rear view of the structure. Drawing of the affected area showing the distances between anchor points and distances between frames if applicable.

ES22/211172 ES13/13899

Marking CE ES19/86524

Coverage and exclusions

Coverage

This warranty covers the replacement and transport to the destination of the defective part or the product in its entirety free of charge. If the product is not available, a product of similar characteristics will be supplied.

The warranty is limited to the replacement of the defective product, so no costs associated with the return will be assumed: disassembly, as well as compensation for consequential damages, supplementary or related to loss of profits or other indirect costs.

The warranty covers all those metallic elements included in the SUNFER brackets.

Exclusions

The warranty does not cover any defects resulting from:

- Inadequate assembly due to not following the SUNFER installation manuals.
- Excessive or insufficient tightening torques.
- Modifications or installations other than those recommended by SUNFER.
- Installation of auxiliary elements other than the supports supplied by SUNFER.
- Improper handling of the product during installation.
- Inadequate handling of the goods. Damage to the product after the shipment, inadequate storage of the product.
- All those purely aesthetic defects that do not affect the structural safety of the product.
- Installations in locations where wind or snow loads exceed those indicated in the product data sheet.
- Inadequate maintenance, see MAINTENANCE MANUAL.
- Fire or exposure to temperatures above 110 °C.
- Problems or defects caused by pollutants not initially contemplated (1).
- Natural disasters such as earthquakes, floods, hurricanes, tornadoes, cyclones, landslides and avalanches, volcanic eruptions or earthquakes.

For those supports in which the fixation to the surface is not included, SUNFER will not be responsible in case of pulling out or collapse due to an insufficient or badly installed anchorage.

Guarantor, execution of Warranties.

The guarantor is SUNFER ESTRUCTURAS S.L.U., registered office at Camino de la Dula s/n 46687, Albalat de la Ribera,Valencia, Spain.

Claims arising in connection with this warranty cannot be transferred to third parties.

The law in force in Spain shall apply with regard to the warranty and any disputes relating to it.

SUNFER
Solar Mounting Systems

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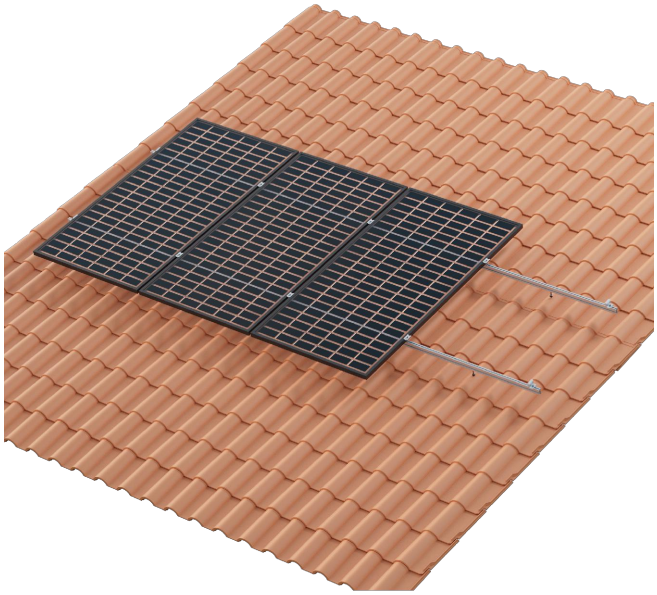

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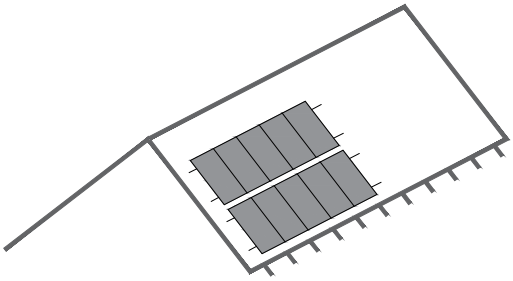

Wooden Beam

Return

Sunfer Estructuras, S.L.U.
Camino de la Dula s/n
Albalat de la Ribera - 46687 (Valencia) Spain

100% ES19/86524 CE

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General Information and Recommendations ENG

- All installation instructions and product specifications provided must be adhered to.
- Check the condition of the roof covering and its carrying capacity. The management overseeing installation is responsible for verifying that the substructure of the roof as well as the static structure of the building itself is capable of supporting additional loads before any installation is carried out.
- To avoid turbulence from wind a minimum security distance (defined by regulations) must be maintained between the photovoltaic installations and roof edges, as well as other obstacles such as chimneys or vents.
- In the case of chimneys or other features which may need future maintenance, a minimum distance must be maintained in order to facilitate said maintenance or to extinguish fires. This distance shall be either 1m or that suggested by the relevant authority, whichever is greater.
- The surface of the roof covering must be clean and dry. Any major irregularities of the roof must be corrected or eliminated.
- The mounting must always be anchored to the structure of the roof.
- Check the weathertightness of the mount once fastened.
- Place solar panels such that they are distributed symmetrically along the support, leaving equal overhangs at each end.
- Clamps must not be tightened using impact drivers.
- Check that the support attachment points are compatible with the solar panel manufacturer's specifications.
- Uninstallation must be carried out in the reverse order from the installation.
- During the shipping of products take extreme care to maintain the integrity of the packaging. Store in a dry, well-ventilated area. Minimize exposure to large temperature differences and humidity. Avoid outdoor storage. Avoid sources of dripping water, puddles, splashing, or any other contact with water in the storage area. If the product becomes wet, immediately dry and clean as well as possible. Do not leave the product directly on the floor or ground where it may attract moisture. Store on the shipment's origninal pallet or on shelves.
- We reserve the right to make changes to our products at any moment without prior warning if, from our point of view, the changes are necessary for the improvement of the product. All illustrations in plans and catalogues are for example only and therefore may differ from the actual product provided.
- Aluminum components can be delivered in different finishes without compromising the structural solution. Available finishes: raw/anodised/lacquered.

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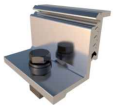
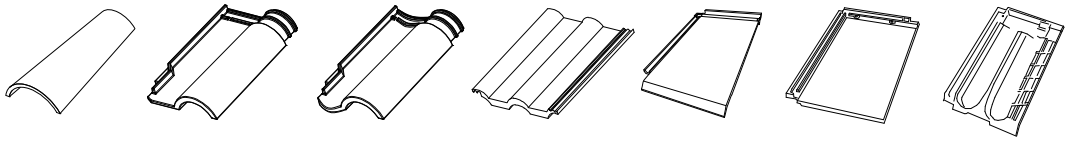
Kit Contents



	S01-EN	S10-EN	S11-EN	UG1-EN	G1-1230-EN	G1-1800-EN	TG1	S13
1	4	4	-	-	2	-	4	2
2	6	4	2	2	4	-	4	3
3	8	4	4	2	-	4	4	4
4	12	4	6	4	2	4	4	5

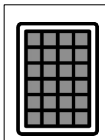


Anchoring Surfaces:

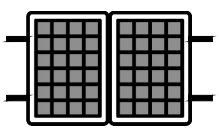
Wooden Beam

Profiles of **EN AW 6005A T6 aluminium**

Fasteners of **A2-70 stainless steel**



Max.
2279x1150 mm
Thickness:
28-40 mm



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Portrait

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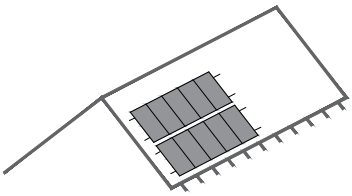
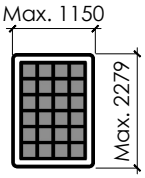
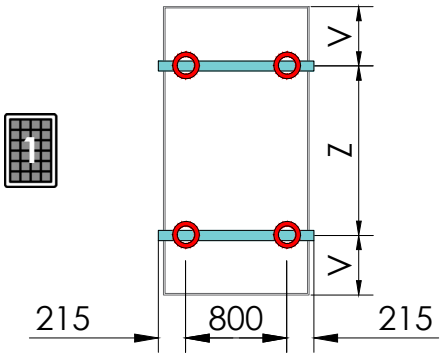
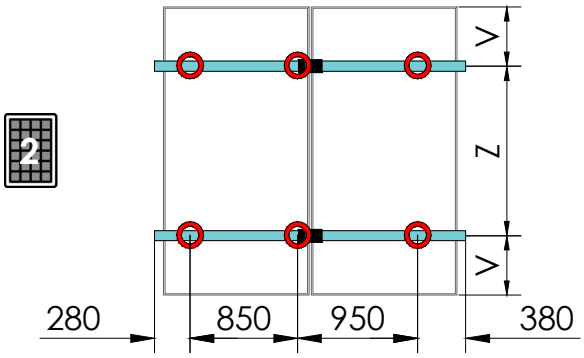
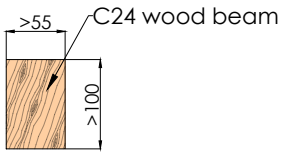
Anchor Spacing

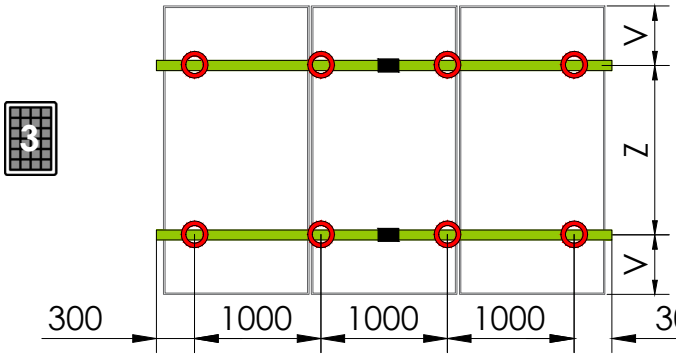


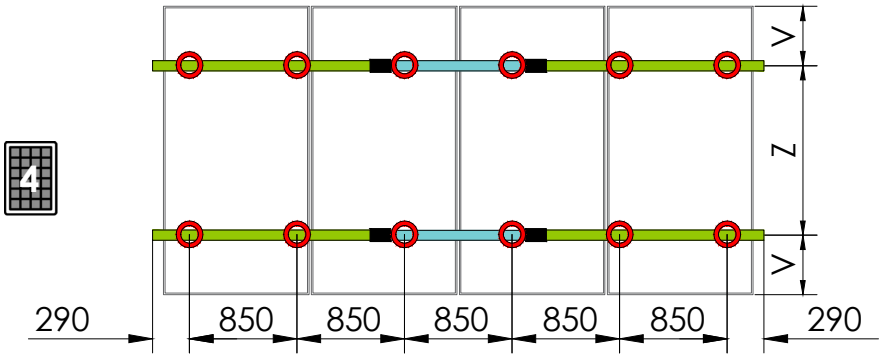


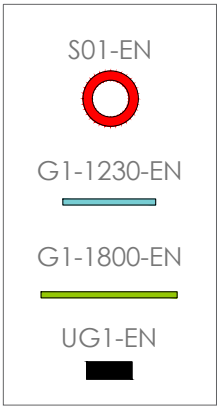










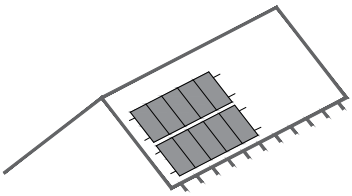


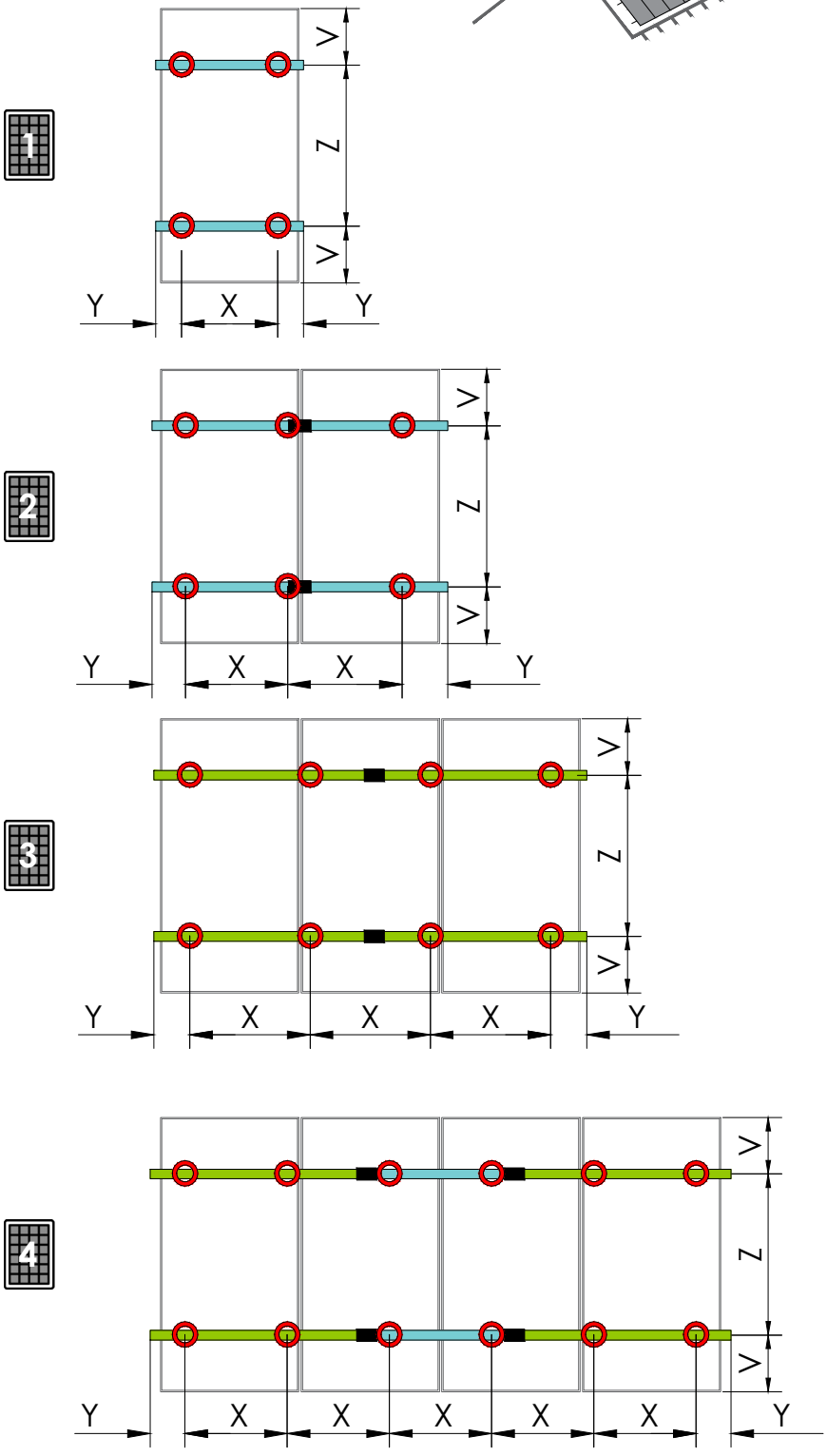
The maximum distance "Z" between profiles and the overhang "V" of the panel must be obtained from the technical datsheets of the panel manufacturer.

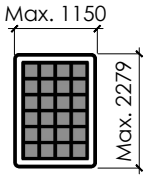
SUNFER
Solar Mounting Systems

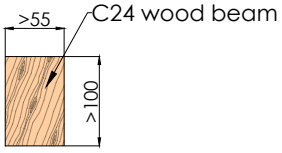
Portrait

01V-EN
Anchor Spacing









X ≤ 1000

0,2* X≤ **Y** ≤ 0,33* X

S01-EN

G1-1230-EN

G1-1800-EN

UG1-EN

The maximum distance "Z" between profiles and the overhang "V" of the panel must be obtained from the technical datsheets of the panel manufacturer.

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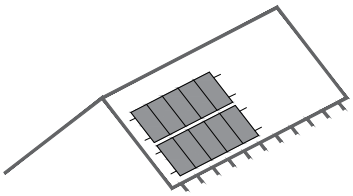
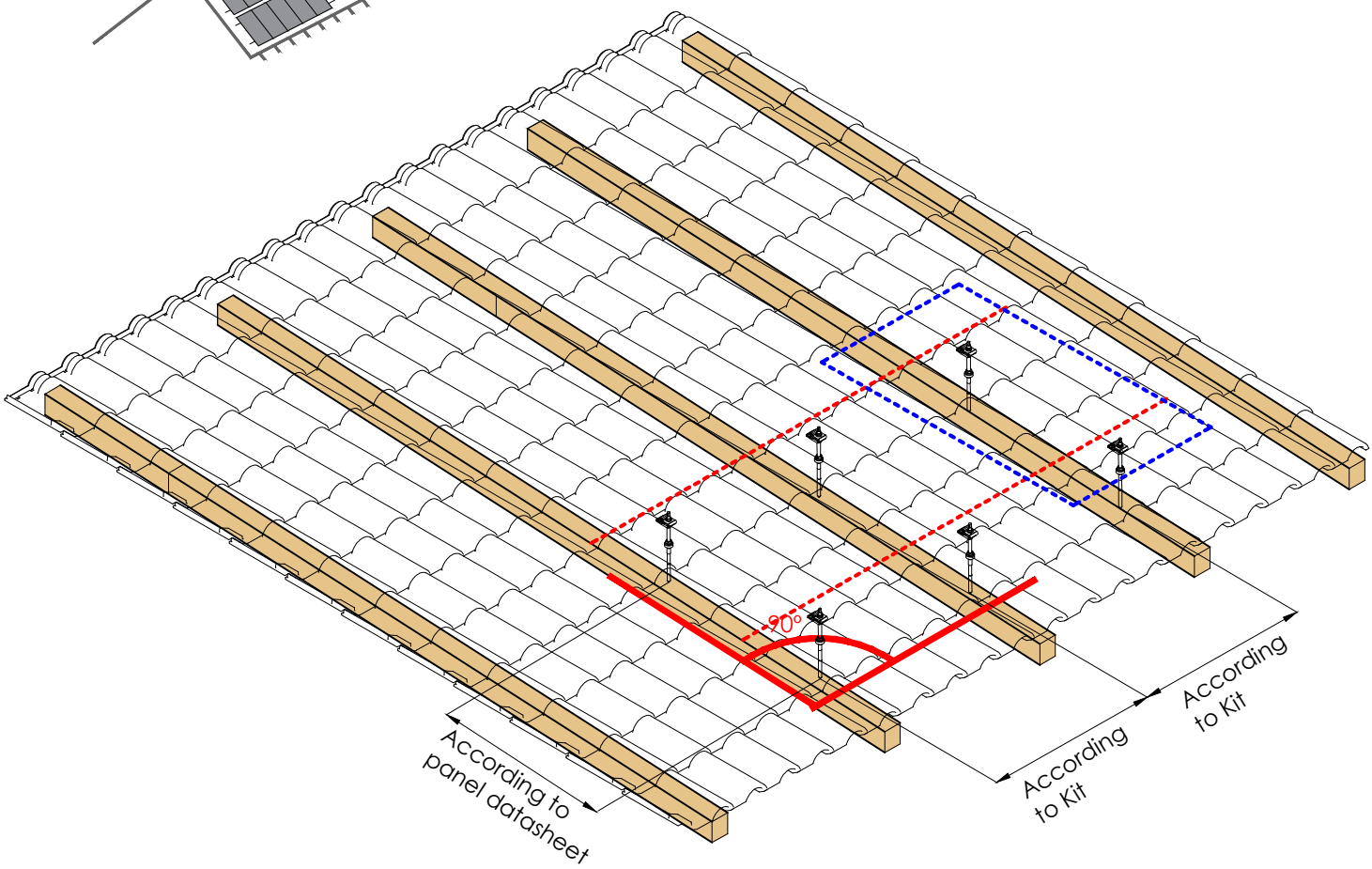
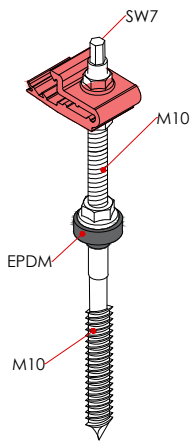
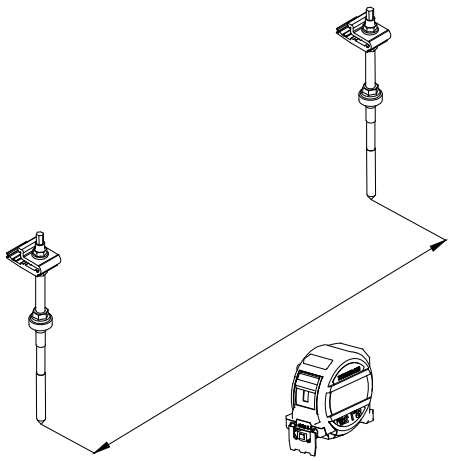
Structure Installation





Note
The "L" bracket must not be attached until the anchor has been fixed.





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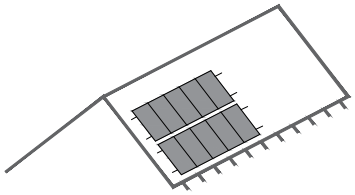

01V-EN

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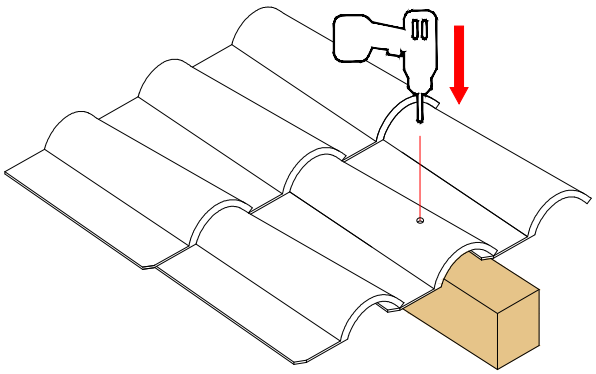

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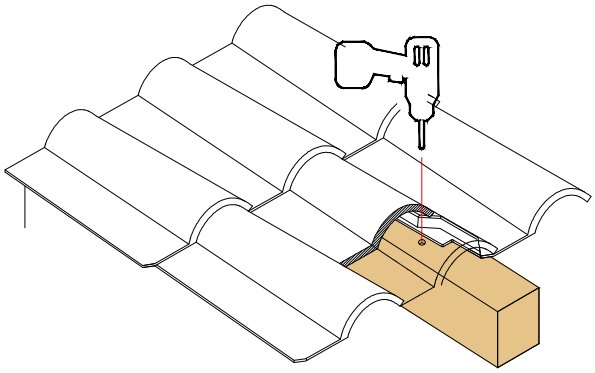

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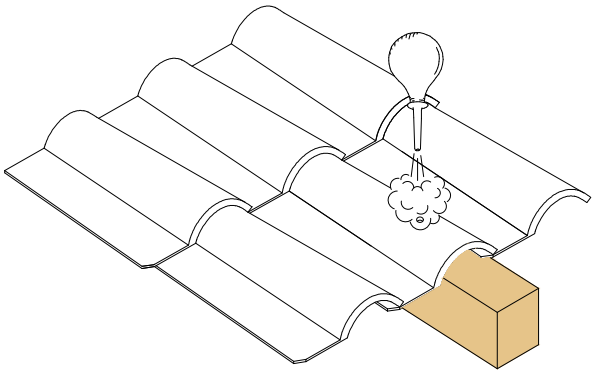

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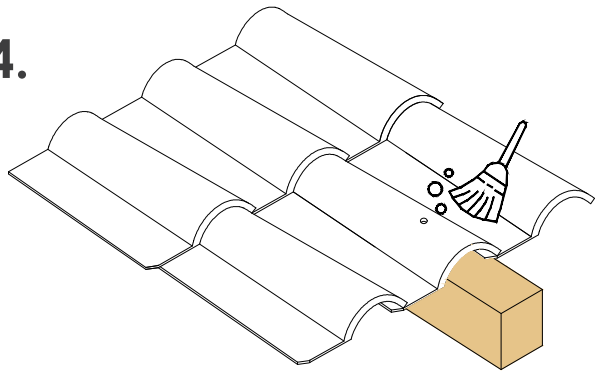

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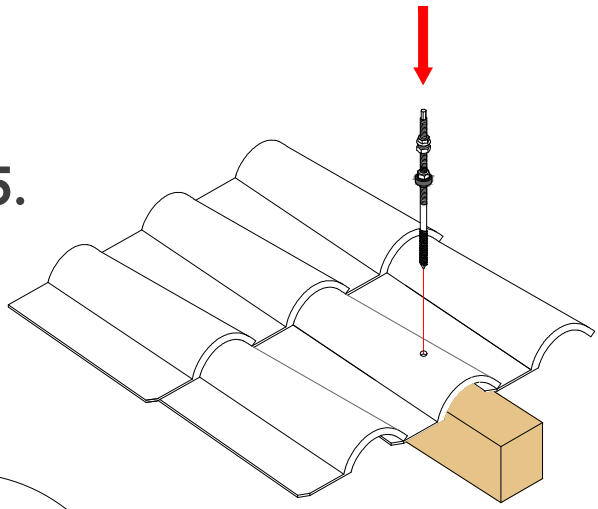

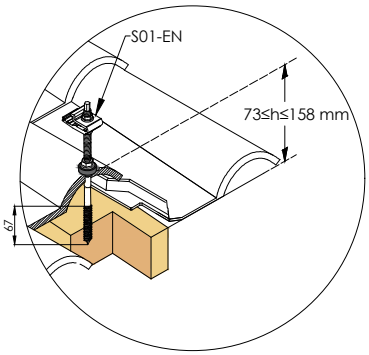

*Must withstand reactions at the attachment point

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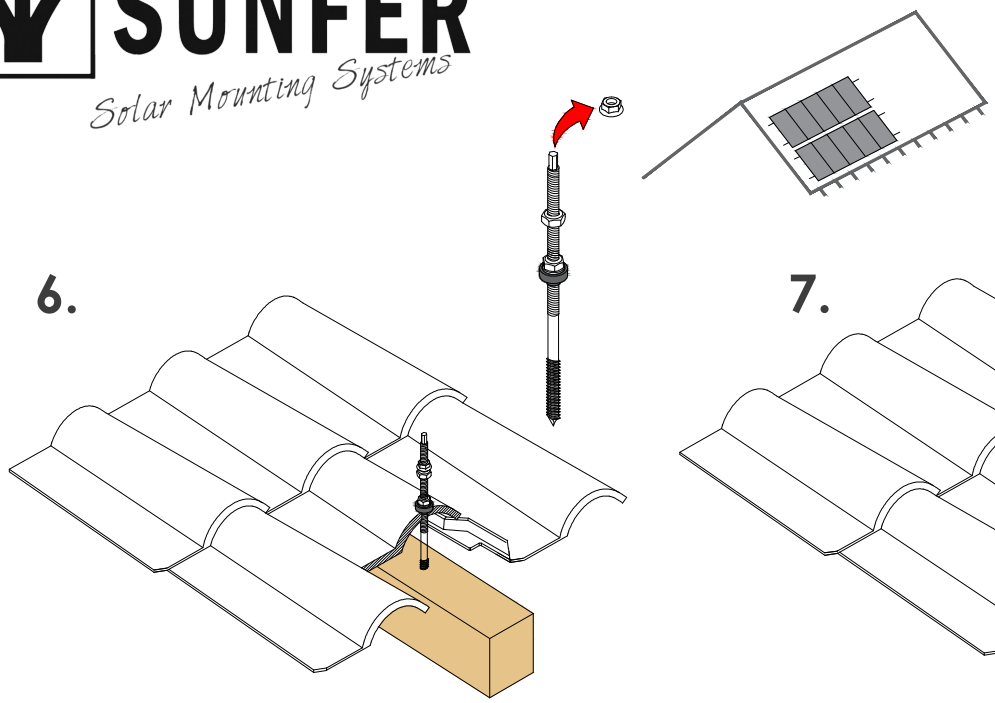

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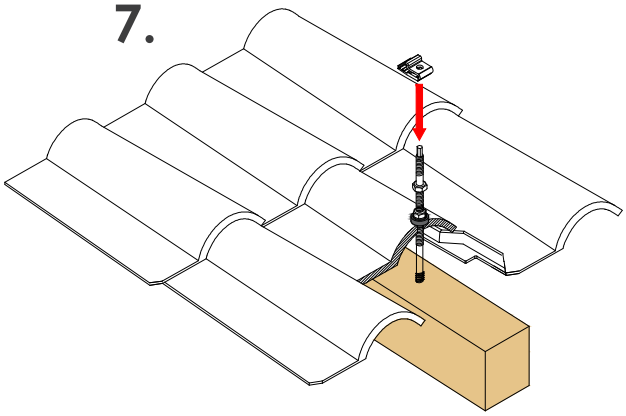

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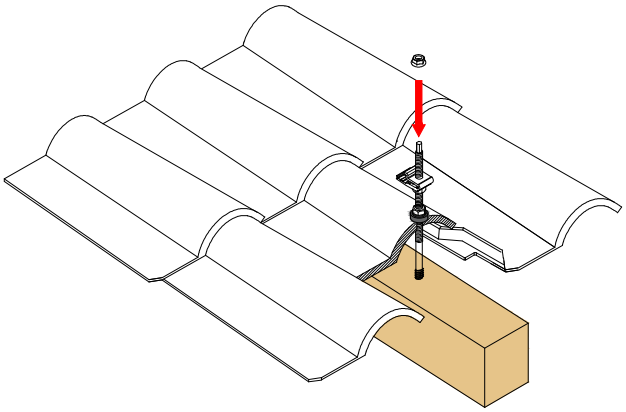

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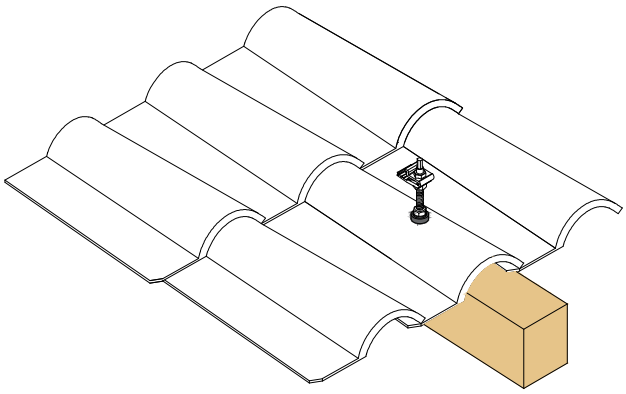

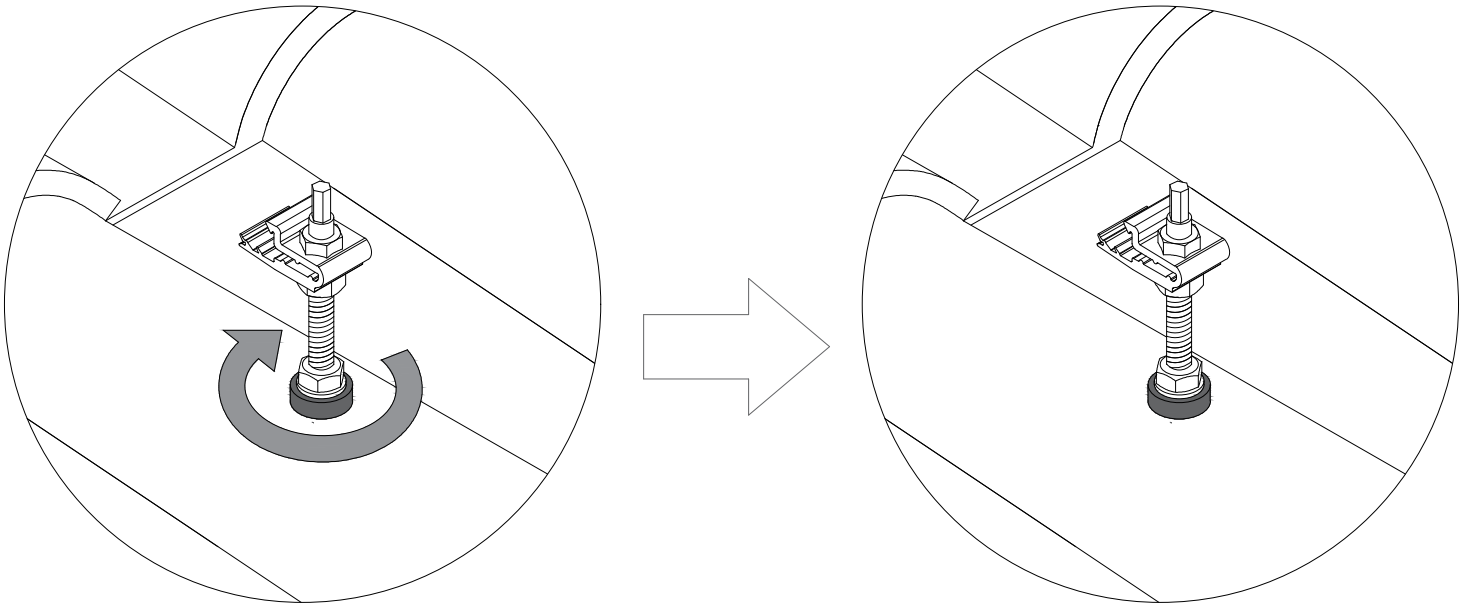

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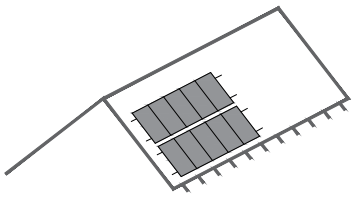
Solar Mounting Systems

01V-EN



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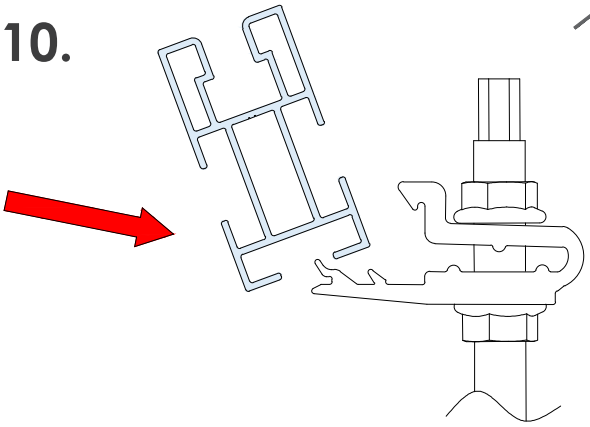

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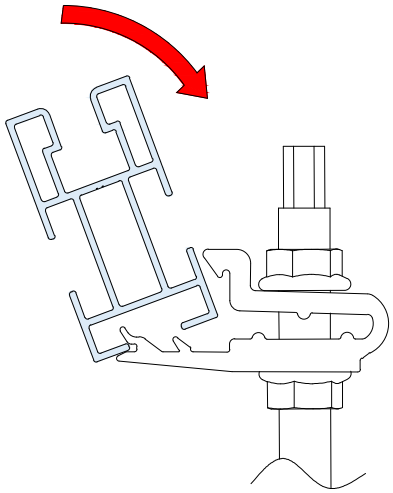

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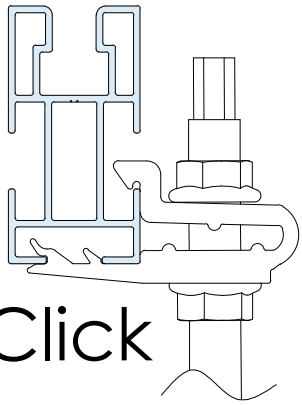
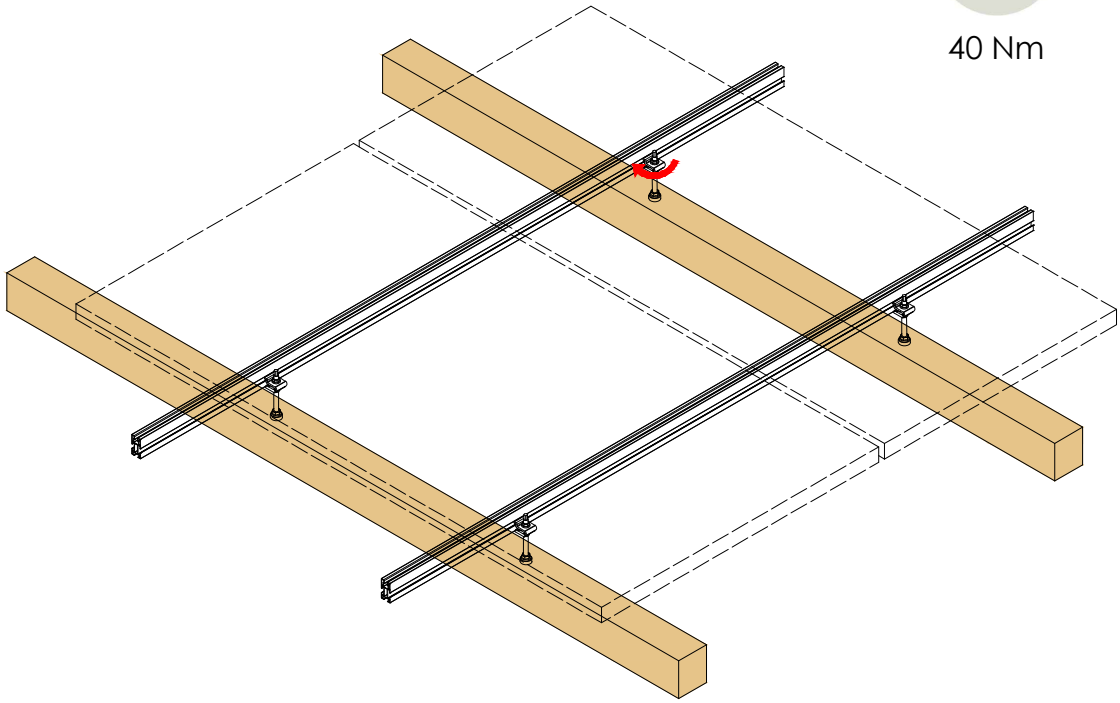


* Click

40 Nm



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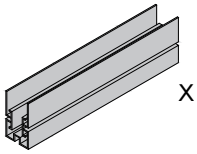
6 Nm

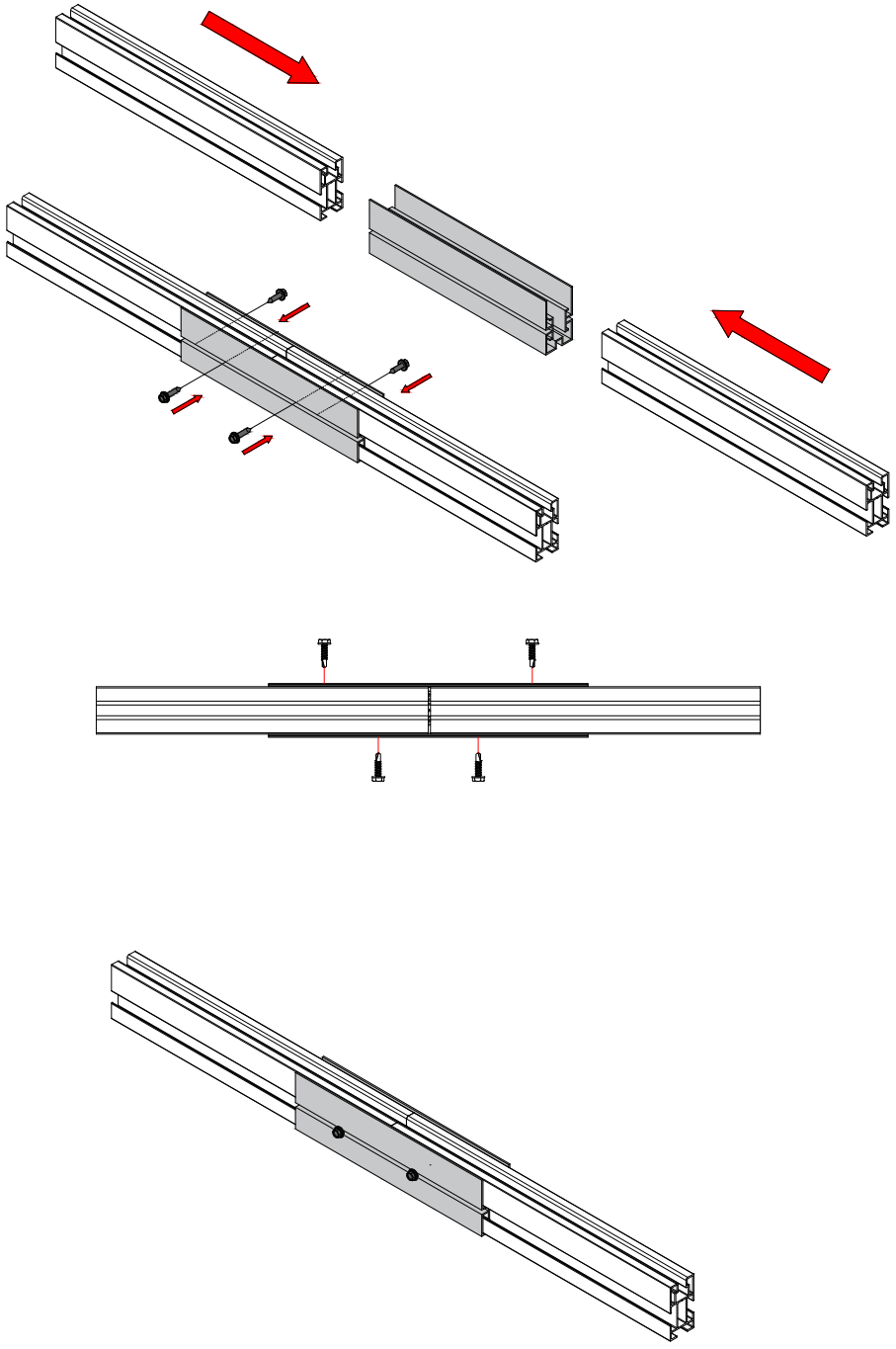
(x4)

UG1-EN



x1

x4



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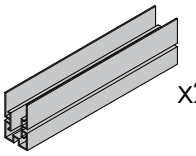
Joining Kit
Optional Step: To join two or more kits

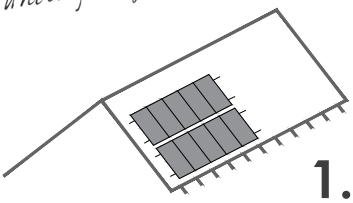
01V-EN

S15-EN
Not included

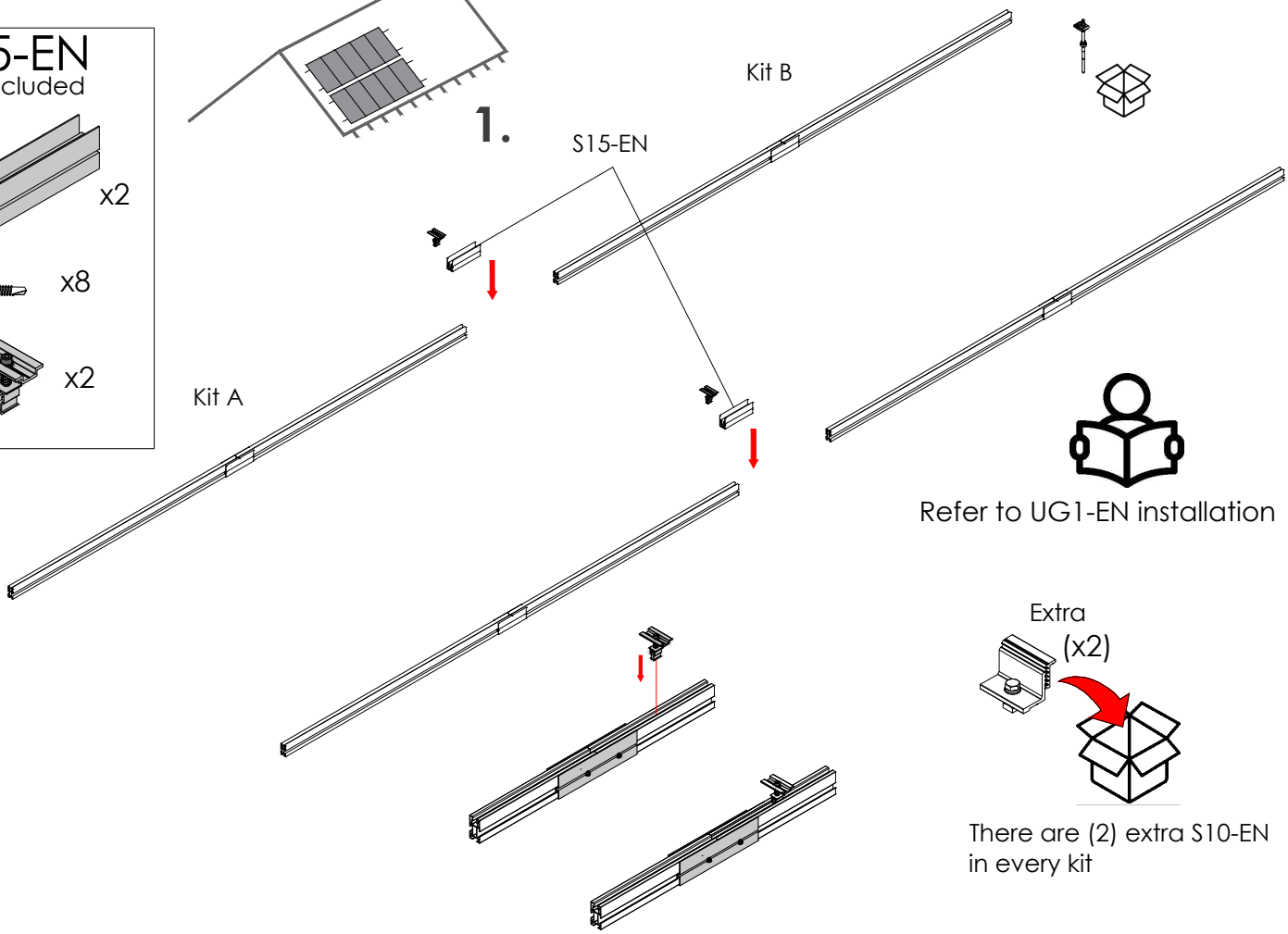

x2


x8


x2



1.



Refer to UG1-EN installation

Extra
(x2)

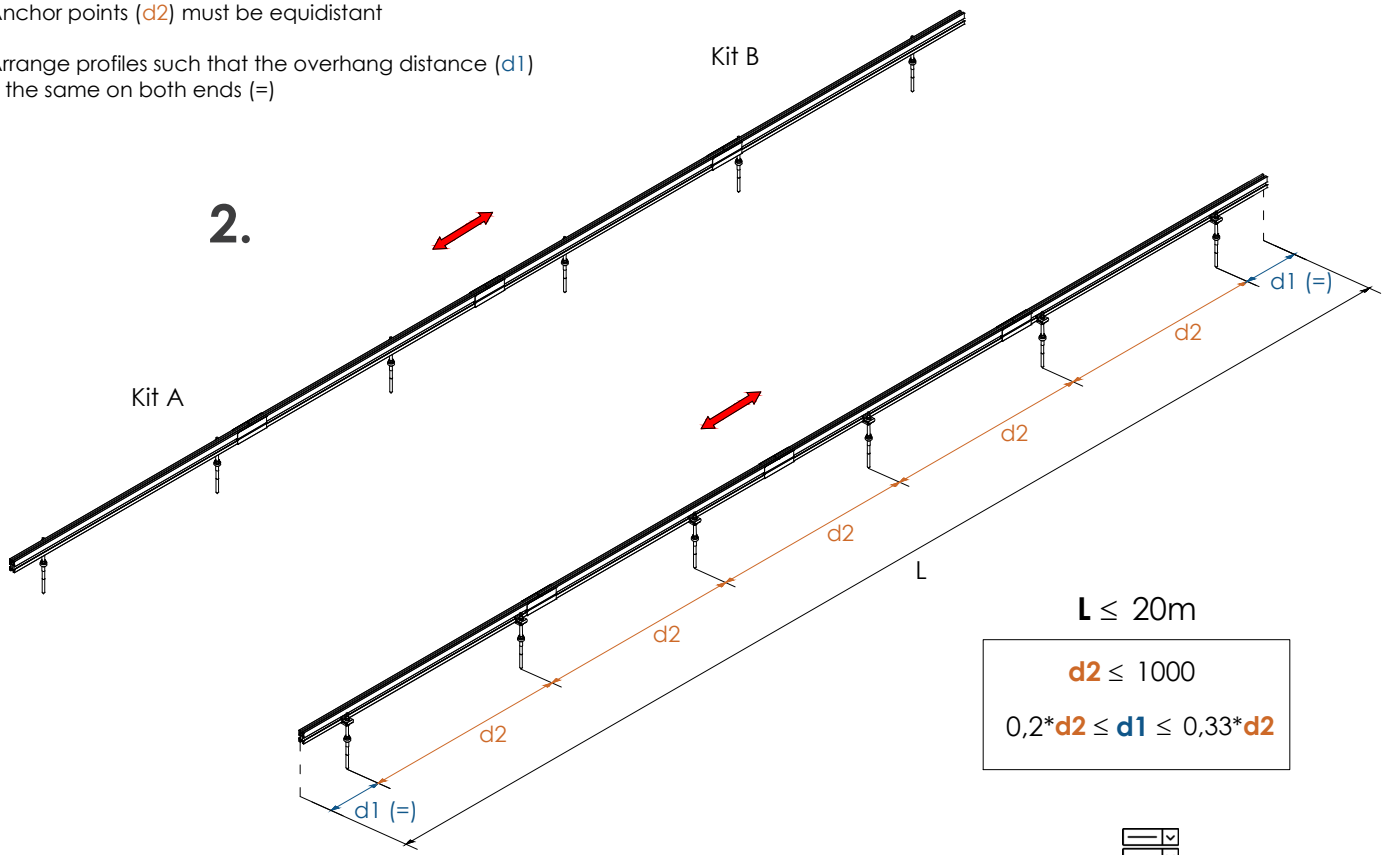
There are (2) extra S10-EN in every kit

Joining of kits:

Anchor points (d2) must be equidistant

Arrange profiles such that the overhang distance (d1) is the same on both ends (=)

2.



L ≤ 20m

d2 ≤ 1000

0,2***d2** ≤ **d1** ≤ 0,33***d2**

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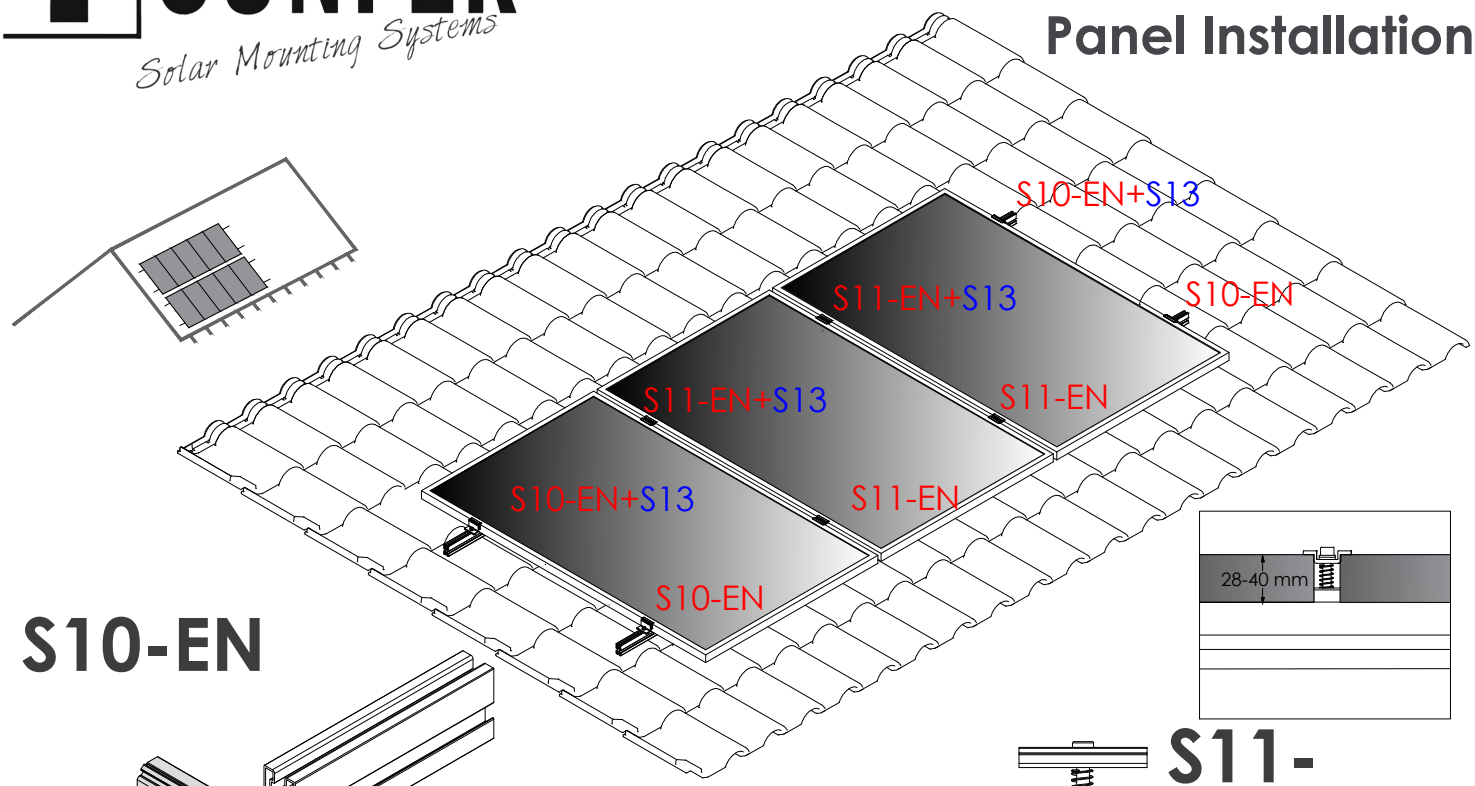
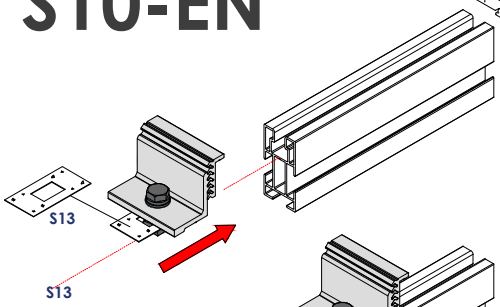
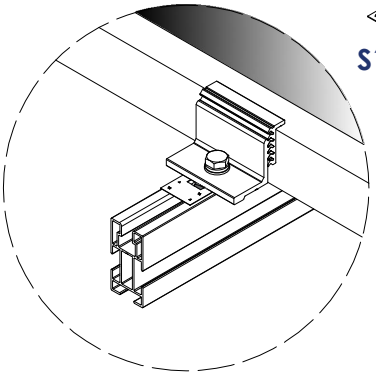
Panel Installation



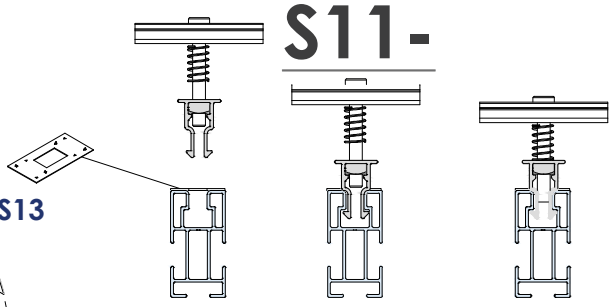
S10-EN



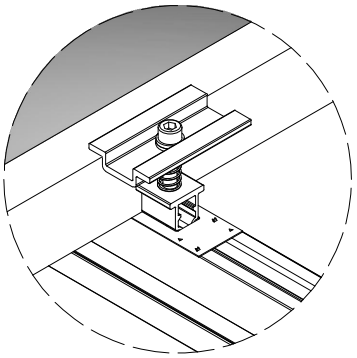
7 Nm

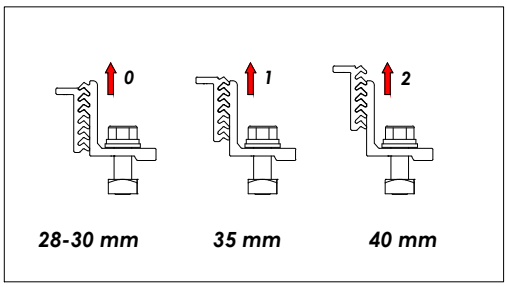


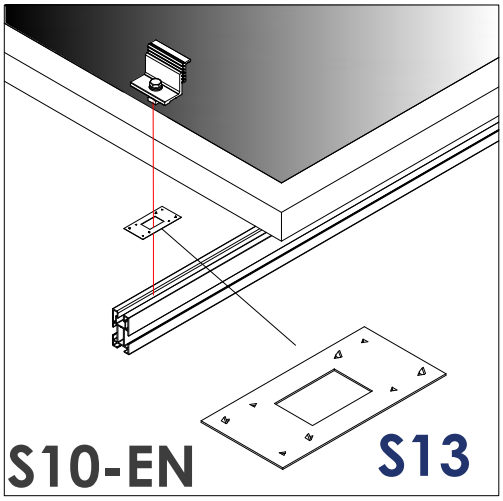
S11-

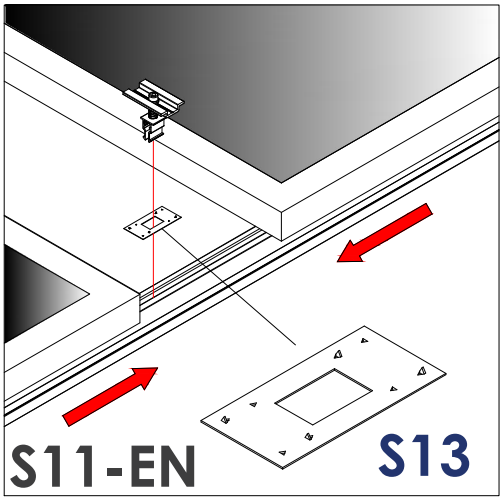


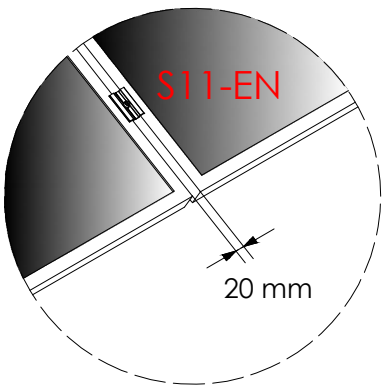
7 Nm











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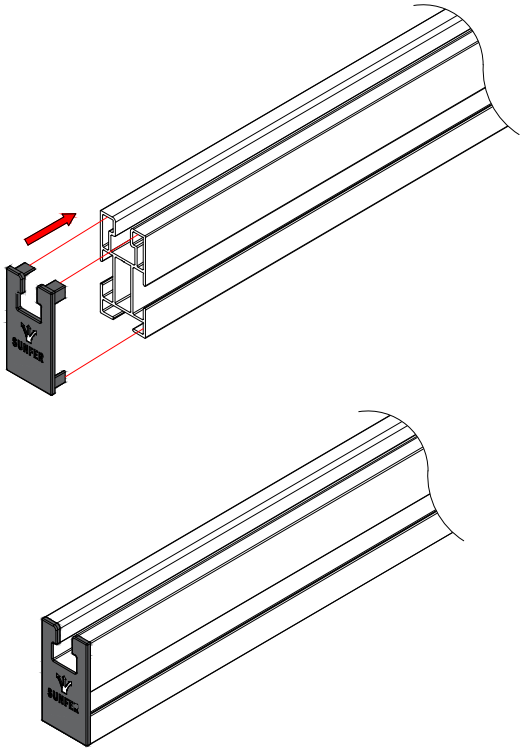
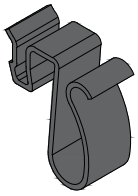
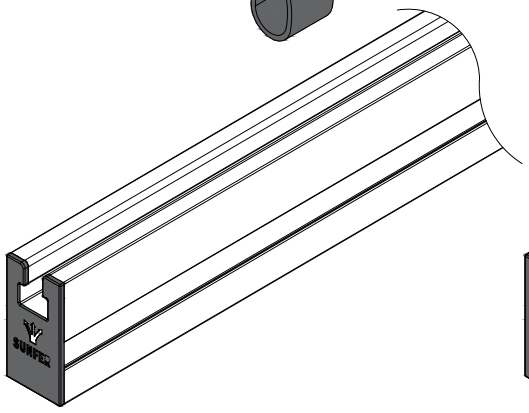
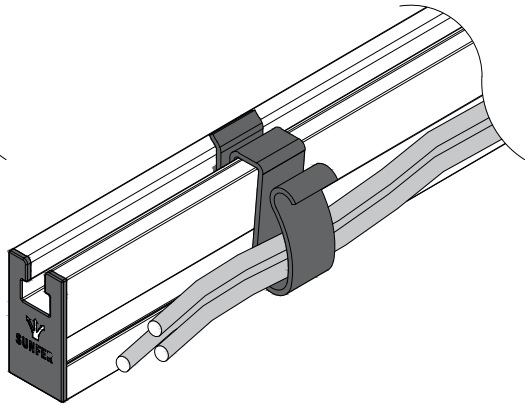




Optional
Cable Clip
(Not Included)





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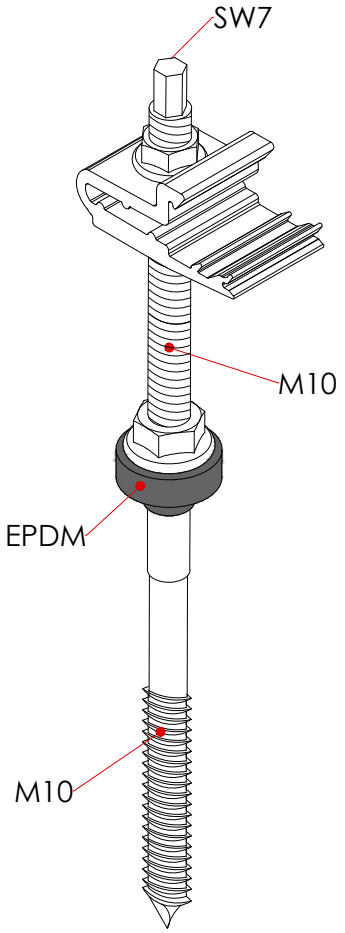
Solar Mounting Systems

01V-EN
S01-EN
Technical Information: Anchor



Characteristics
Hexagonal Head.
A2-70 Stainless Steel.
Application Surfaces:
- Wood with a maximum density of 350 kg/m³. Wood type C24 or greater
- HA-25 Concrete Slab

Technical Specifications:
Screw Length: 250 mm.
Screw Diameter: 10 mm.
Pre-drill Diameter:
Wood: 7 mm
Concrete: See anchor datasheet

Yield Moment $M_{y,RK}$*
5.80 [kN.cm]

Tension and Compression Strengths*

K_{mod}=0.7	**Effective Embedment Depth** lef **[mm]**									
	40	**43**	**46**	**49**	**52**	**55**	**58**	**61**	**64**	**67**
N_{RK} [kN]	2.40	2.58	2.76	2.94	3.12	3.30	3.48	3.66	3.84	4.02

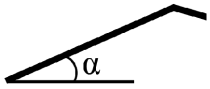
*Data valid for wood of C24 or greater

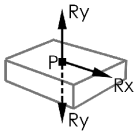
Description	Coplanar Support
Panel Disposition	Portrait/Landscape
Format	KIT of 1 to 4 panels
Joining Kit	S15-EN not included (optional)
Application Surface	Tile and Metal Sheet
Anchoring Surface	Concrete Slab and Wooden Beam
Type of Fastening	Screwed
Fastener	S01-EN
Profile	G1-EN
Grounding piece	S13
Maximum Panel Dimensions	2279x1150 mm
Panel Thickness	from 28 to 40 mm
Materials	Fasteners: A2-70 Stainless Steel Profiles: Raw or Anodized EN AW 6005A T6 Aluminium EPDM Weather Seal
Maximum Loads	According to Application
Structural Calculation	Computational models checked against EUROCODE 9 "Structures of Aluminium"

SUNFER
Solar Mounting Systems

01V-EN
Loads and Reactions

Maximum admissible loads and their reactions





5° Pitch

10° Pitch

15° Pitch

20° Pitch

25° Pitch

30° Pitch

35° Pitch

40° Pitch

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Solar Mounting Systems

01V-EN
Loads and Reactions

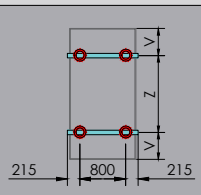
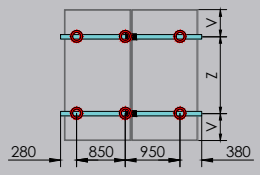
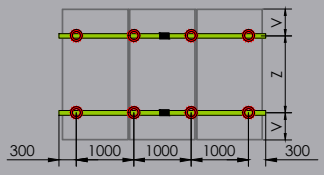
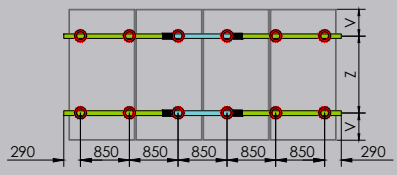
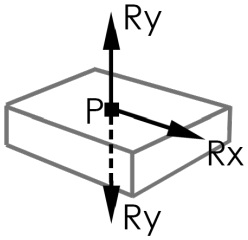
Maximum Admissible Loads and Reactions					5°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	265	0.32	0.00	1.86
	130	265	0.26	0.03	1.53
	150	265	0.26	0.10	1.54
	180	265	0.26	0.22	1.57
	210	265	0.26	0.36	1.60
	250	265	0.26	0.58	1.65
2 	110	220	0.33	0.00	2.40
	130	265	0.32	0.04	2.34
	150	265	0.32	0.12	2.36
	180	264	0.32	0.27	2.40
	210	258	0.31	0.44	2.40
	250	248	0.30	0.72	2.40
3 	110	191	0.29	0.00	2.40
	130	237	0.29	0.04	2.40
	150	234	0.28	0.12	2.40
	180	228	0.28	0.27	2.40
	210	222	0.27	0.44	2.40
	250	212	0.26	0.71	2.40
4 	110	229	0.25	0.00	2.40
	130	265	0.23	0.03	2.25
	150	265	0.23	0.09	2.27
	180	265	0.23	0.20	2.31
	210	265	0.23	0.32	2.36
	250	260	0.23	0.52	2.40

Table 1 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Solar Mounting Systems

01V-EN
Loads and Reactions

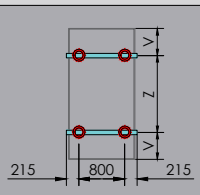
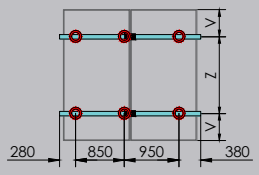
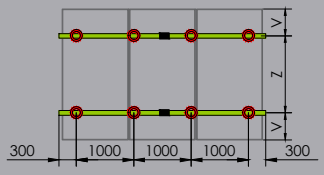
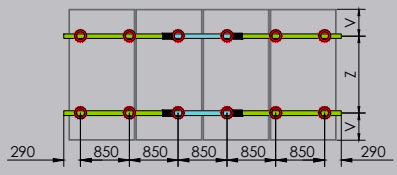
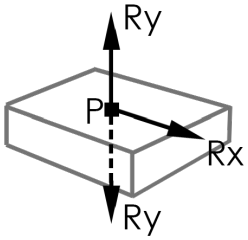
Maximum Admissible Loads and Reactions					10°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	265	0.63	0.00	1.82
	130	265	0.51	0.03	1.49
	150	265	0.51	0.10	1.51
	180	265	0.51	0.22	1.54
	210	265	0.51	0.36	1.57
	250	265	0.51	0.58	1.62
2 	110	225	0.67	0.00	2.40
	130	265	0.63	0.04	2.29
	150	265	0.63	0.13	2.31
	180	265	0.63	0.27	2.35
	210	264	0.63	0.45	2.40
	250	254	0.61	0.72	2.40
3 	110	196	0.58	0.00	2.40
	130	242	0.58	0.04	2.40
	150	239	0.57	0.12	2.40
	180	234	0.56	0.27	2.40
	210	227	0.54	0.44	2.40
	250	217	0.52	0.71	2.40
4 	110	235	0.51	0.00	2.40
	130	265	0.46	0.03	2.20
	150	265	0.46	0.09	2.23
	180	265	0.46	0.20	2.27
	210	265	0.46	0.32	2.31
	250	265	0.46	0.52	2.39

Table 2 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

SUNFER
Solar Mounting Systems

01V-EN
Loads and Reactions

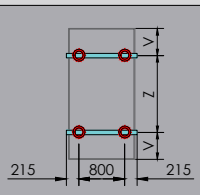
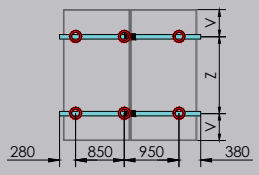
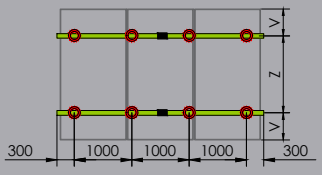
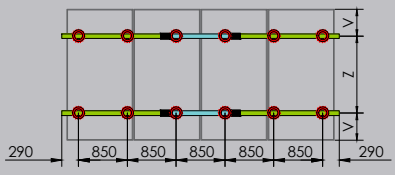
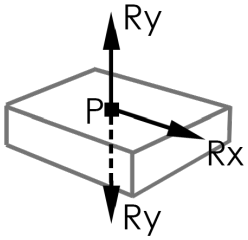
Maximum Admissible Loads and Reactions					15°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	265	0.92	0.02	1.78
	130	265	0.75	0.09	1.47
	150	265	0.75	0.18	1.50
	180	265	0.75	0.33	1.55
	210	265	0.75	0.51	1.61
	250	265	0.75	0.80	1.70
2 	110	229	1.00	0.03	2.38
	130	265	0.93	0.12	2.26
	150	265	0.93	0.22	2.30
	180	265	0.93	0.41	2.37
	210	257	0.90	0.64	2.40
	250	238	0.84	0.99	2.40
3 	110	200	0.87	0.03	2.40
	130	245	0.85	0.12	2.40
	150	240	0.84	0.22	2.40
	180	230	0.80	0.41	2.40
	210	218	0.76	0.63	2.40
	250	200	0.71	0.98	2.40
4 	110	240	0.76	0.02	2.40
	130	265	0.67	0.09	2.17
	150	265	0.67	0.16	2.21
	180	265	0.67	0.30	2.29
	210	265	0.67	0.46	2.37
	250	251	0.64	0.72	2.40

Table 3 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Solar Mounting Systems

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Loads and Reactions

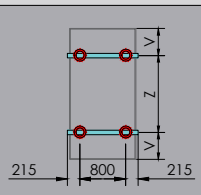
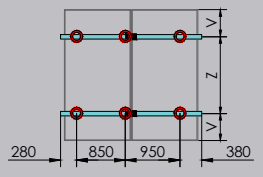
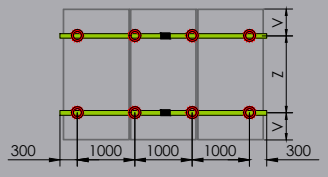
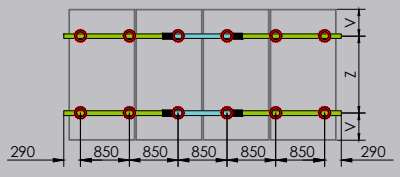
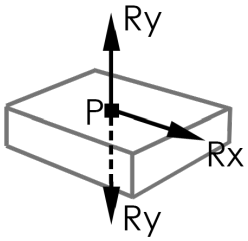
Maximum Admissible Loads and Reactions						20°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)	
1 	110	220	1.00	0.03	1.43
	130	265	0.96	0.10	1.40
	150	265	0.96	0.19	1.43
	180	265	0.96	0.34	1.48
	210	265	0.96	0.52	1.53
	250	265	0.96	0.80	1.62
2 	110	175	1.00	0.03	1.78
	130	218	1.00	0.12	1.81
	150	218	1.00	0.23	1.85
	180	218	1.00	0.42	1.93
	210	218	1.00	0.64	2.02
	250	218	1.00	0.99	2.15
3 	110	177	1.00	0.03	2.05
	130	221	1.00	0.12	2.09
	150	221	1.00	0.23	2.13
	180	221	1.00	0.41	2.22
	210	221	1.00	0.64	2.32
	250	212	0.96	0.98	2.40
4 	110	245	1.00	0.02	2.32
	130	265	0.87	0.09	2.07
	150	265	0.87	0.17	2.11
	180	265	0.87	0.31	2.18
	210	265	0.87	0.47	2.26
	250	265	0.87	0.72	2.39

Table 4 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

SUNFER
Solar Mounting Systems

01V-EN
Loads and Reactions

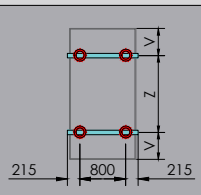
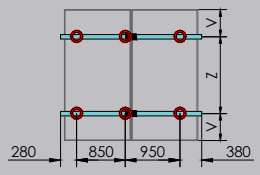
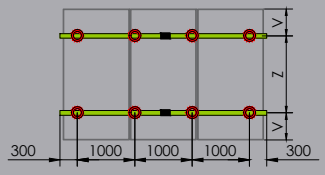
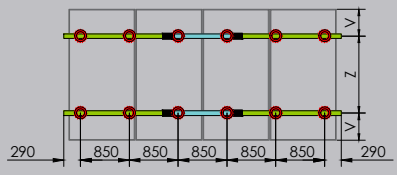
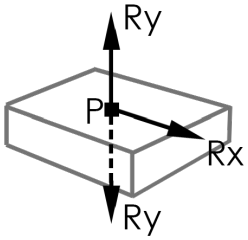
Maximum Admissible Loads and Reactions					25°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	182	1.00	0.03	1.13
	130	228	1.00	0.11	1.15
	150	228	1.00	0.19	1.18
	180	228	1.00	0.34	1.23
	210	228	1.00	0.52	1.28
	250	228	1.00	0.81	1.37
2 	110	144	1.00	0.04	1.41
	130	180	1.00	0.13	1.45
	150	180	1.00	0.24	1.49
	180	180	1.00	0.43	1.56
	210	180	1.00	0.65	1.65
	250	180	1.00	1.00	1.79
3 	110	145	1.00	0.04	1.62
	130	182	1.00	0.13	1.66
	150	182	1.00	0.23	1.71
	180	182	1.00	0.42	1.79
	210	182	1.00	0.64	1.89
	250	182	1.00	0.99	2.05
4 	110	203	1.00	0.03	1.83
	130	254	1.00	0.10	1.87
	150	254	1.00	0.17	1.91
	180	254	1.00	0.31	1.98
	210	254	1.00	0.47	2.06
	250	254	1.00	0.73	2.19

Table 5 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Loads and Reactions

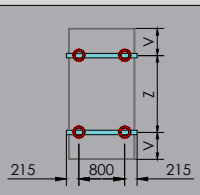
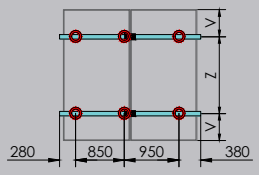
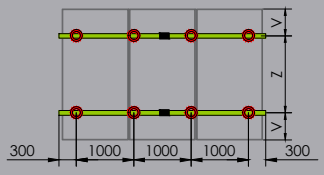
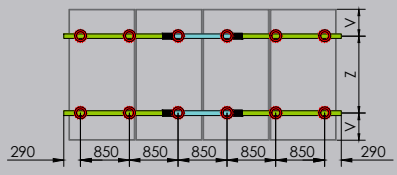
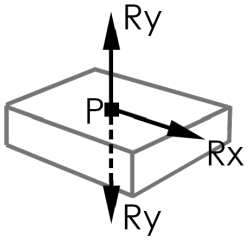
Maximum Admissible Loads and Reactions					30°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	159	1.00	0.00	0.96
	130	198	1.00	0.00	0.99
	150	198	1.00	0.04	1.03
	180	198	1.00	0.13	1.11
	210	198	1.00	0.23	1.20
	250	198	1.00	0.39	1.34
2 	110	125	1.00	0.00	1.21
	130	156	1.00	0.00	1.27
	150	156	1.00	0.06	1.33
	180	156	1.00	0.16	1.45
	210	156	1.00	0.28	1.59
	250	156	1.00	0.48	1.82
3 	110	126	1.00	0.00	1.39
	130	158	1.00	0.00	1.45
	150	158	1.00	0.05	1.53
	180	158	1.00	0.16	1.66
	210	158	1.00	0.28	1.82
	250	158	1.00	0.47	2.07
4 	110	177	1.00	0.00	1.55
	130	221	1.00	0.00	1.60
	150	221	1.00	0.04	1.66
	180	221	1.00	0.12	1.77
	210	221	1.00	0.21	1.91
	250	221	1.00	0.35	2.11

Table 6 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Solar Mounting Systems

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Loads and Reactions

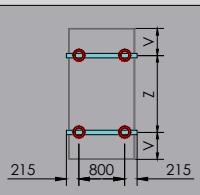
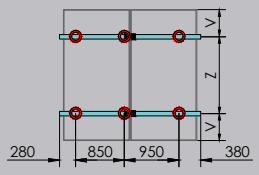
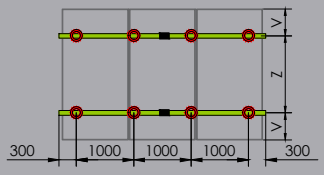
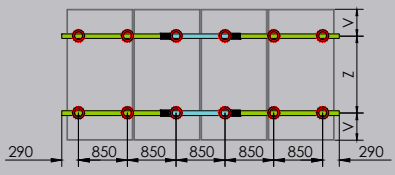
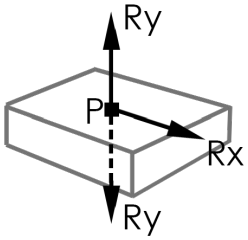
Maximum Admissible Loads and Reactions					35°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	173	1.00	0.00	0.81
	130	216	1.00	0.00	0.84
	150	216	1.00	0.05	0.88
	180	216	1.00	0.14	0.96
	210	216	1.00	0.24	1.05
	250	216	1.00	0.39	1.19
2 	110	135	1.00	0.00	1.02
	130	169	1.00	0.01	1.08
	150	169	1.00	0.07	1.14
	180	169	1.00	0.17	1.26
	210	169	1.00	0.29	1.40
	250	169	1.00	0.49	1.72
3 	110	137	1.00	0.00	1.17
	130	171	1.00	0.01	1.23
	150	171	1.00	0.06	1.31
	180	171	1.00	0.17	1.44
	210	171	1.00	0.29	1.60
	250	171	1.00	0.48	1.96
4 	110	193	1.00	0.00	1.30
	130	242	1.00	0.00	1.35
	150	242	1.00	0.05	1.42
	180	242	1.00	0.12	1.53
	210	242	1.00	0.21	1.66
	250	242	1.00	0.36	1.87

Table 7 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

SUNFER
Solar Mounting Systems

01V-EN
Loads and Reactions

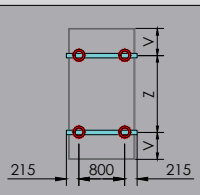
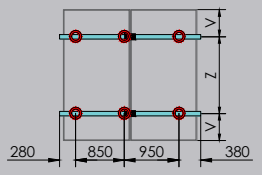
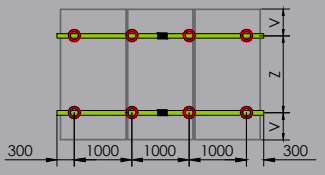
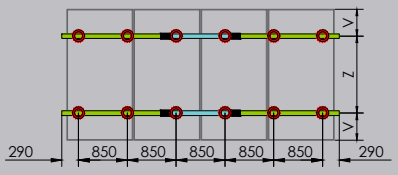
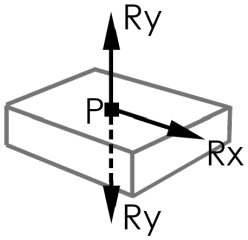
Maximum Admissible Loads and Reactions					40°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	204	1.00	0.00	0.68
	130	255	1.00	0.01	0.72
	150	255	1.00	0.06	0.76
	180	255	1.00	0.15	0.83
	210	255	1.00	0.25	0.91
	250	255	1.00	0.40	1.08
2 	110	159	1.00	0.00	0.87
	130	198	1.00	0.02	0.92
	150	198	1.00	0.08	0.98
	180	198	1.00	0.18	1.09
	210	198	1.00	0.31	1.22
	250	198	1.00	0.50	1.56
3 	110	161	1.00	0.00	1.00
	130	201	1.00	0.02	1.05
	150	201	1.00	0.08	1.12
	180	201	1.00	0.18	1.25
	210	201	1.00	0.30	1.40
	250	201	1.00	0.49	1.78
4 	110	228	1.00	0.00	1.10
	130	265	0.93	0.01	1.09
	150	265	0.93	0.06	1.15
	180	265	0.93	0.13	1.25
	210	265	0.93	0.22	1.37
	250	265	0.93	0.36	1.60

Table 8 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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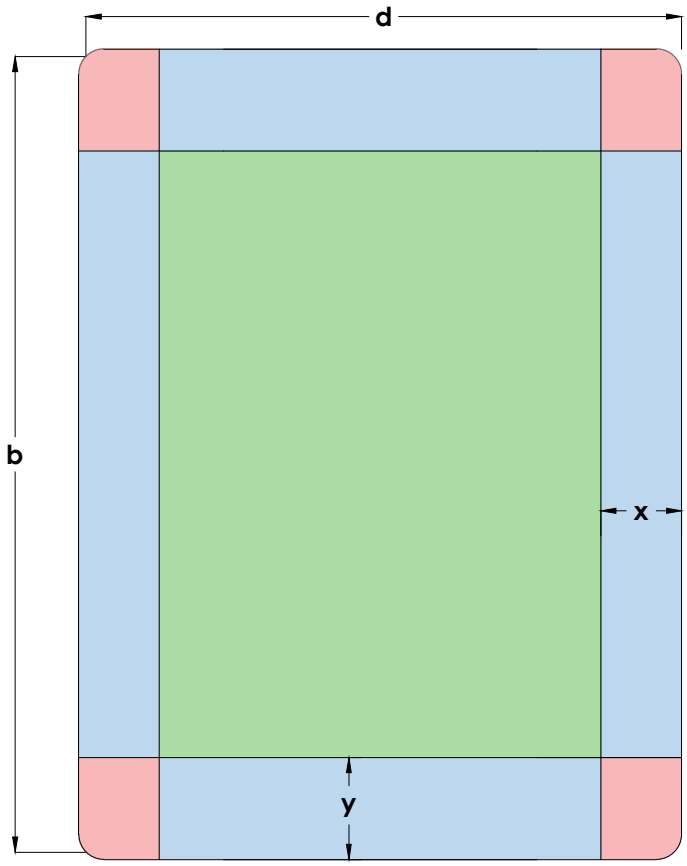
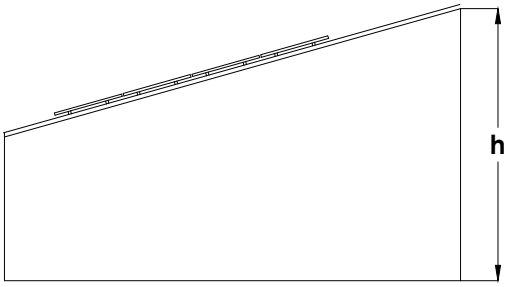
Installation Zone



e= Min [b,2h]

x = Max [e/10 , 0.5m]
y = Max [e/4 , 0.5m]



Installation Safe Zone

Turbulence Zone

Extreme Turbulence Zone

To avoid turbulence and other negative effects, PV panels must be installed inside of the green Safe Zone. PV panels must not be installed inside of the turbulent zones.

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Installation Video

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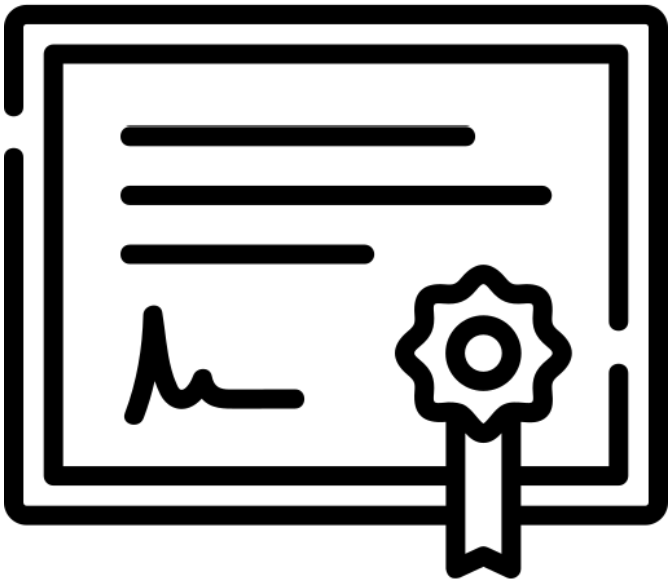
Certificates and Guarantee



- ISO 9001 Certified
- ISO 14001 Certified
- CE Marking
- Guaranteed

This is a translation of the certificate ES13/13899

The management system of

SUNFER ESTRUCTURAS, S.L.U.

Camí de la Dula, s/n, 46687 Albalat de la Ribera, Valencia

has been assessed and certified as meeting the requirements of

ISO 9001:2015

For the following activities
Design, manufacture and sale of solar energy structures.

This certificate is valid from 19 May 2023 until 8 April 2025 and remains valid subject to satisfactory surveillance audits.

Issue 6. Certified with SGS since 8 April 2013

Last certificate expiry date 8 April 2022
Recertification audit date 31 March 2022

Authorised by

SGS International Certification Services Iberica, S.A.U.
C/Trespaderne, 29. 28042 Madrid. España
t +34 91 313 8115 - www.sgs.com

This is a translation of the certificate ES22/211172

The management system of

SUNFER ESTRUCTURAS, S.L.U.

Camí de la Dula, s/n, 46687 Albalat de la Ribera, Valencia

has been assessed and certified as meeting the requirements of

ISO 14001:2015

For the following activities
Design, manufacture and sale of solar energy structures.

This certificate is valid from 19 May 2023 until 22 April 2025 and remains valid subject to satisfactory surveillance audits.

Issue 2. Certified with SGS since 22 April 2022

Authorised by

SGS International Certification Services Iberica, S.A.U.
C/Trespaderne, 29. 28042 Madrid. España
t +34 91 313 8115 - www.sgs.com

SUNFER

CE

IDENTIFICATION NUMBER OF NOTIFIED ORGANISM:

1181

NUMBER AND REGISTERED ADDRESS OF MANUFACTURERS. INSTALLATION LOCATION:

Business name: *SUNFER ESTRUCTURAS, S.L.U.*

Address: *Camí de la Dula s/n*

Postal Code: *46687*

Location: *Albalat de la Ribera*

City: *Valencia*

Country: *España*

TWO LAST DIGITS OF THE YEAR THAT THE MARKING WAS FIXED:

19

ES19/86524

EN 1090-1

Description of product: ***01V-EN***

TOLERANCES IN GEOMETRIC INFORMATION:	*EN 1090-3*
WELDABILITY:	*--*
FRACTURE RESISTANCE:	*--*
FIRE REACTION:	*Classified material A1*
CADMIUM EMISSION:	*N/A*
RADIACTIVITY EMISSION:	*N/A*
DURABILITY:	*N/A*

STRUCTURAL CHARACTERISTICS:

- **Carrying capacity:** *See product instructions and data sheet*
- **Fatigue resistance:** *N/A*
- **Fire resistance:** *N/A*
- **Manufacturing:** *According to the component specification and EN1090-3. Execution class EXC1*

DECLARATION OF PERFORMANCE NUMBER:	P-0114

1. PRODUCT DESCRIPTION.

UNIQUE IDENTIFICATION CODE OF THE PRODUCT TYPE:	01V-EN

2. NAME AND ADDRESS OF MANUFACTURER.

NAME:	SUNFER ESTRUCTURAS, S.L.U.
COMERCIAL NAME (if exists):	--
ADDRESS:	CAMI DE LA DULA S/N
CITY AND PC:	46687 ALBALAT DE LA RIBERA -- COMUNIDAD VALENCIANA (SPAIN)

3. INTENDED USE(S) OF THE PRODUCT:
ALUMINUM STRUCTURE TO SUPPORT PHOTOVOLTAIC PANELS.

4. SYSTEM OF EVALUATION AND VERIFICATION OF CONSTANCY OF PERFORMANCE:
System 2+

5. HARMONIZED STANDARD:
This product complies with the provisions of Annex ZA of the European standard **UNE-EN 1090-1:2011 + A1:2012**

6. NOTIFIED ORGANISM:

NAME:	**SGS ICS IBÉRICA. S.A.**
Notified Organism Number:	**NB1181**

7. DECLARED PERFORMANCES:

Essential Characteristics	Performances	Harmonised technical specifications
Tolerances in geometric information	Conforms to limits for essential tolerances□	EN 1090-3
Weldability	Not applicable because there is no welding in the structure	----
Fracture Tenacity	Not required for aluminum components	-----
Carrying Capacity	N/A	
Fatigue Resistance	N/A	
Fire Resistance	N/A	
Fire reaction	Class A1	EN 13501-1
Emission of cadmium and its compounds	OK	
Emission of radioactivity	OK	
Durability	N/A	
Structural features - Carrying capacity - Fatigue resistance: N/A - Fire resistance: N/A - Manufacturing	See product data sheet N/A N/A According to the component specification. Execution class EXC1	UNE EN 1999-1-1 UNE EN 1090-3

- The performance of the product identified above is in accordance with all the declared performance.
- This declaration of performance is issued in accordance with Regulation (EN) No. 305/2011 under the responsibility of the manufacturer identified above.

Manufacturer's Name: Voro Gómez Nacher
Date of issue: 02/08/2023
Signature:

Warranty Terms and Conditions

Structural and anti-corrosion warranty

The supports manufactured by SUNFER, are manufactured under strict production control in the factory as well as our raw materials that are tested and controlled periodically, so we can offer the following guarantee for our products

Structural guarantee of twenty-five (25) years.

Anti-corrosion guarantee according to table 1.

Materials	NON-HARSH environment (1) Distance to coastline Greater than 5 Km	HARSH or MARINE environment Distance to coastline Less than 5 Km
Raw Aluminium	Fifteen (15) years	Five (5) years
Anodized Aluminium	Twenty-five (25) years	Twenty-five (25) years

Table 1.

(1) Non-exhaustive list of zones considered to be harsh environments:

a. Industrial zones with emissions that include sulphur dioxide, nitrogen oxides, sulphuric acid, sulphuric compounds, chlorine, or other volatile gases; 5 km safety distance.
b. Electric generating stations that use the following fuels: coal, natural gas, petroleum: 5 km safety distance.
c. Petrochemical plants; 5 km safety distance.
d. Cellulose factories; 5 km safety distance
e. Wastewater treatment facilities: 500 m safety distance.

In these areas it is necessary to use anodised aluminium as long as the safety distance indicated above is not exceeded.

The adhesive warranty on 07.1H and S07.1 is ten (10) years. The warranty on the 2-sided adhesive tape of the S07.1 anchor covers the product supplied by Sunfer and can be applied provided that the breakage is caused by the profile tearing away from the adhesive tape. In the event that the breakage is caused by the adhesive tape tearing away from the cover, it will be considered a faulty assembly on site.

Mixed galvanised steel and raw aluminium supports such as, for example: Elevated, Monopoles, Car parks:
Environments C3 fifteen (15) years guarantee.
Environments C4-C5 five (5) years.

Mixed galvanised steel and anodised aluminium supports, such as: Elevated, Monopoles, Car parks:
Environments C3 guarantee twenty-five (25) years.
Environments C4-C5 fifteen (15) years.

This warranty applies to orders supplied from 03/01/2023, orders supplied prior to this date will be governed by the warranty document in force on the date of supply.

The warranty covers the final installation and therefore applies directly to the end user of the structure. In order to manage the warranties, the final customer will have to contact the distributor who has made the supply so that he can send it to the SUNFER Customer Service. The guarantee period starts from the date of the delivery note and it will be cancelled if the customer has not complied with the payment terms agreed in the invoice.

In order to execute the guarantee, the following documents must be sent:

- Sales invoice
- Date of commissioning.
- Details of the end customer.
- General photographs showing the entire installation.
- Detailed photographs:
  - o Fixing of the structure to the roof showing the distance between fixings.
  - o Assembled structure without photovoltaic modules.
  - o Rear view of the structure. Drawing of the affected area showing the distances between anchor points and distances between frames if applicable.

ES22/211172 ES13/13899

Marking CE ES19/86524

Coverage and exclusions

Coverage

This warranty covers the replacement and transport to the destination of the defective part or the product in its entirety free of charge. If the product is not available, a product of similar characteristics will be supplied.

The warranty is limited to the replacement of the defective product, so no costs associated with the return will be assumed: disassembly, as well as compensation for consequential damages, supplementary or related to loss of profits or other indirect costs.

The warranty covers all those metallic elements included in the SUNFER brackets.

Exclusions

The warranty does not cover any defects resulting from:

- Inadequate assembly due to not following the SUNFER installation manuals.
- Excessive or insufficient tightening torques.
- Modifications or installations other than those recommended by SUNFER.
- Installation of auxiliary elements other than the supports supplied by SUNFER.
- Improper handling of the product during installation.
- Inadequate handling of the goods. Damage to the product after the shipment, inadequate storage of the product.
- All those purely aesthetic defects that do not affect the structural safety of the product.
- Installations in locations where wind or snow loads exceed those indicated in the product data sheet.
- Inadequate maintenance, see MAINTENANCE MANUAL.
- Fire or exposure to temperatures above 110 °C.
- Problems or defects caused by pollutants not initially contemplated (1).
- Natural disasters such as earthquakes, floods, hurricanes, tornadoes, cyclones, landslides and avalanches, volcanic eruptions or earthquakes.

For those supports in which the fixation to the surface is not included, SUNFER will not be responsible in case of pulling out or collapse due to an insufficient or badly installed anchorage.

Guarantor, execution of Warranties.

The guarantor is SUNFER ESTRUCTURAS S.L.U., registered office at Camino de la Dula s/n 46687, Albalat de la Ribera,Valencia, Spain.

Claims arising in connection with this warranty cannot be transferred to third parties.

The law in force in Spain shall apply with regard to the warranty and any disputes relating to it.

SUNFER

Solar Mounting Systems

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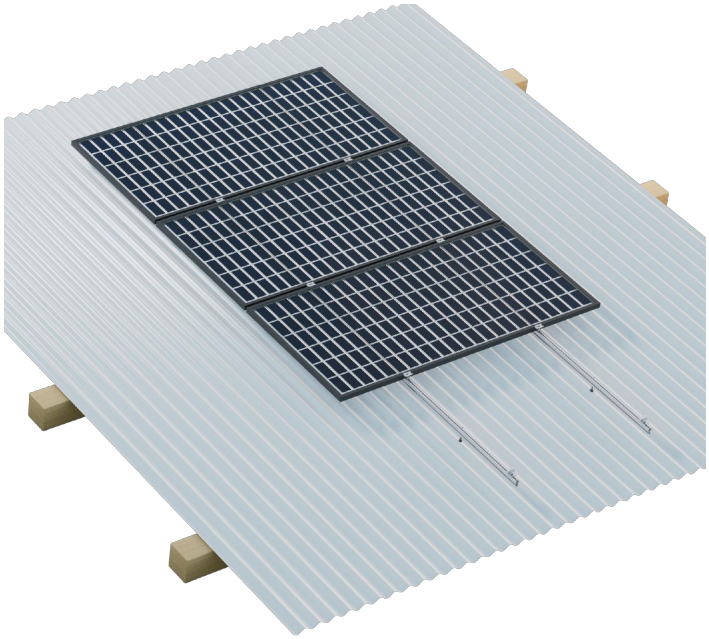

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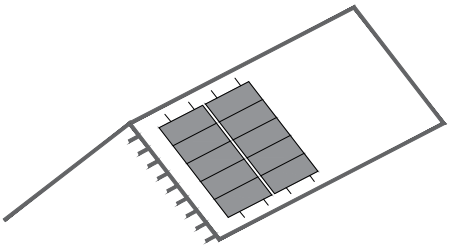

Wooden Beam

Return

Sunfer Estructuras, S.L.U.
Camino de la Dula s/n
Albalat de la Ribera - 46687 (Valencia) Spain

100% ES19/86524 CE

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General Information and Recommendations ENG

- All installation instructions and product specifications provided must be adhered to.
- Check the condition of the roof covering and its carrying capacity. The management overseeing installation is responsible for verifying that the substructure of the roof as well as the static structure of the building itself is capable of supporting additional loads before any installation is carried out.
- To avoid turbulence from wind a minimum security distance (defined by regulations) must be maintained between the photovoltaic installations and roof edges, as well as other obstacles such as chimneys or vents.
- In the case of chimneys or other features which may need future maintenance, a minimum distance must be maintained in order to facilitate said maintenance or to extinguish fires. This distance shall be either 1m or that suggested by the relevant authority, whichever is greater.
- The surface of the roof covering must be clean and dry. Any major irregularities of the roof must be corrected or eliminated.
- The mounting must always be anchored to the structure of the roof.
- Check the weathertightness of the mount once fastened.
- Place solar panels such that they are distributed symmetrically along the support, leaving equal overhangs at each end.
- Clamps must not be tightened using impact drivers.
- Check that the support attachment points are compatible with the solar panel manufacturer's specifications.
- Uninstallation must be carried out in the reverse order from the installation.
- During the shipping of products take extreme care to maintain the integrity of the packaging. Store in a dry, well-ventilated area. Minimize exposure to large temperature differences and humidity. Avoid outdoor storage. Avoid sources of dripping water, puddles, splashing, or any other contact with water in the storage area. If the product becomes wet, immediately dry and clean as well as possible. Do not leave the product directly on the floor or ground where it may attract moisture. Store on the shipment's origninal pallet or on shelves.
- We reserve the right to make changes to our products at any moment without prior warning if, from our point of view, the changes are necessary for the improvement of the product. All illustrations in plans and catalogues are for example only and therefore may differ from the actual product provided.
- Aluminum components can be delivered in different finishes without compromising the structural solution. Available finishes: raw/anodised/lacquered.

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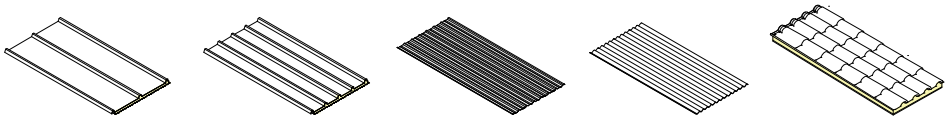
Kit Contents

	S01-EN	S10-EN	S11-EN	UG1-EN	G1-1230-EN	G1-1800-EN	TG1	S13
1	4	4	-	-	2	-	4	2
2	6	4	2	2	4	-	4	3
3	8	4	4	2	-	4	4	4
4	12	4	6	4	2	4	4	5

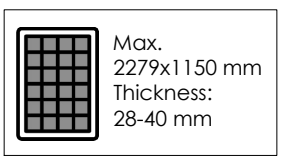


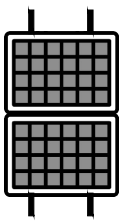
Anchoring Surfaces:

Wooden Beam

Profiles of **EN AW 6005A T6 aluminium**

Fasteners of **A2-70 stainless steel**





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Landscape

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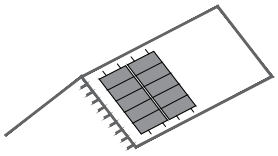
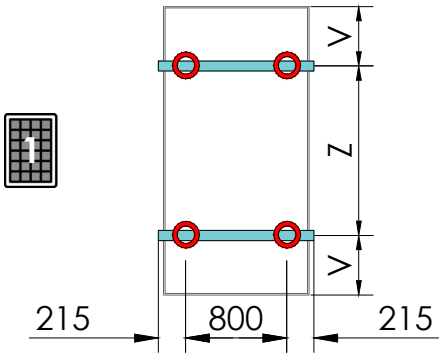
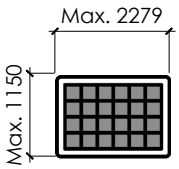
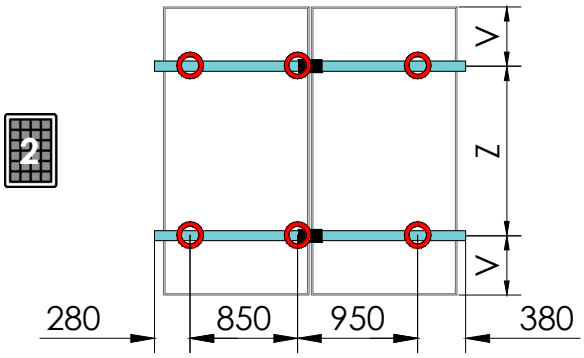
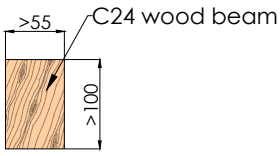
Anchor Spacing

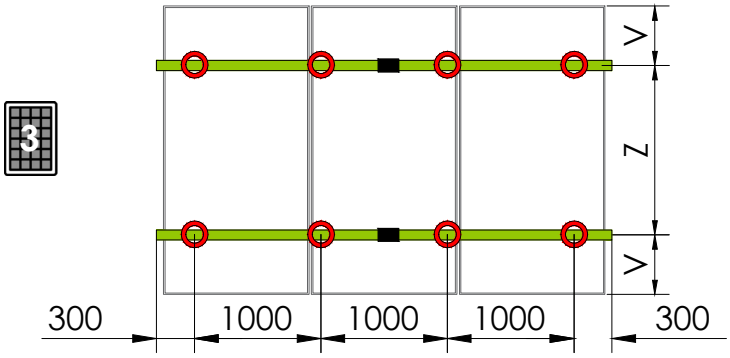


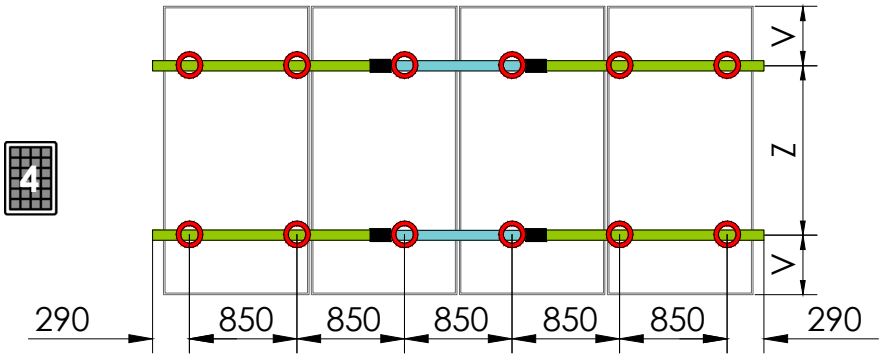


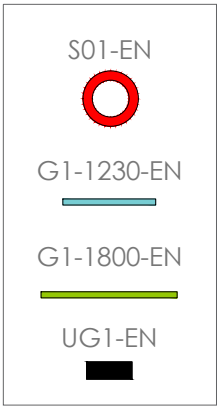












The maximum distance "Z" between profiles and the overhang "V" of the panel must be obtained from the technical datsheets of the panel manufacturer.

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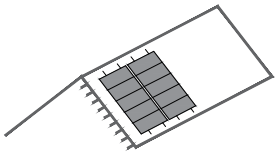
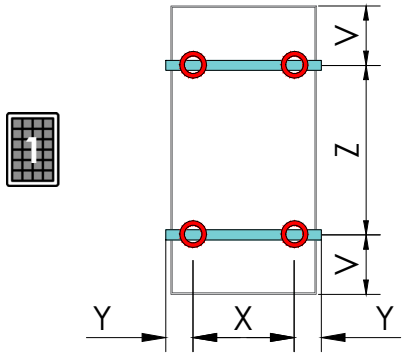
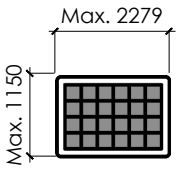
Solar Mounting Systems

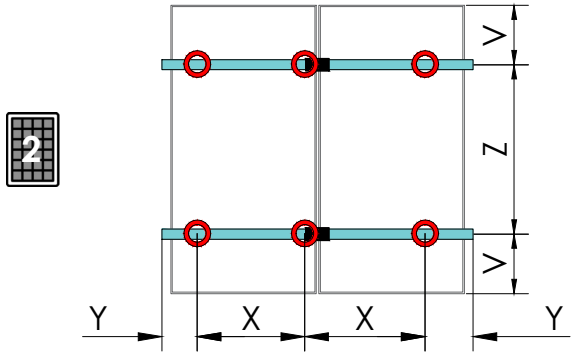
Landscape

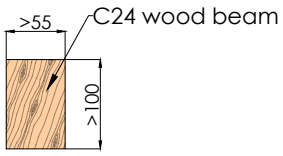
01V-EN
Anchor Spacing

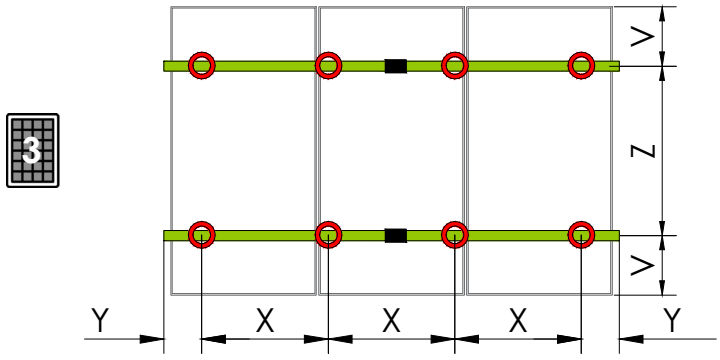






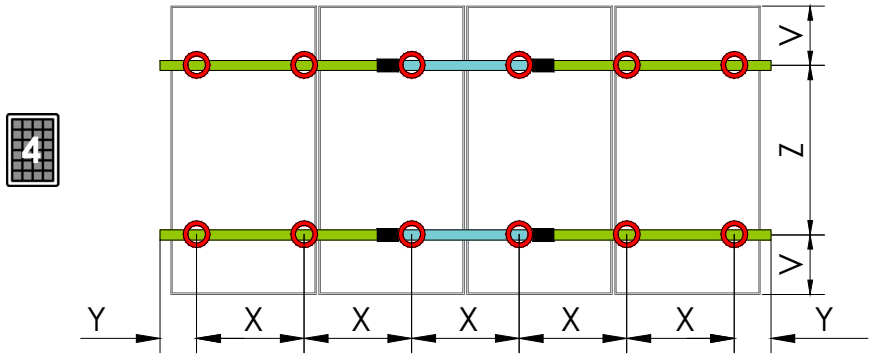






X ≤ 1000

0,2* X≤ **Y** ≤ 0,33* X



S01-EN

G1-1230-EN

G1-1800-EN

UG1-EN

The maximum distance "Z" between profiles and the overhang "V" of the panel must be obtained from the technical datsheets of the panel manufacturer.

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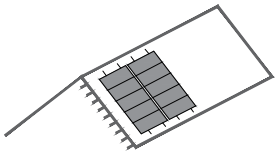
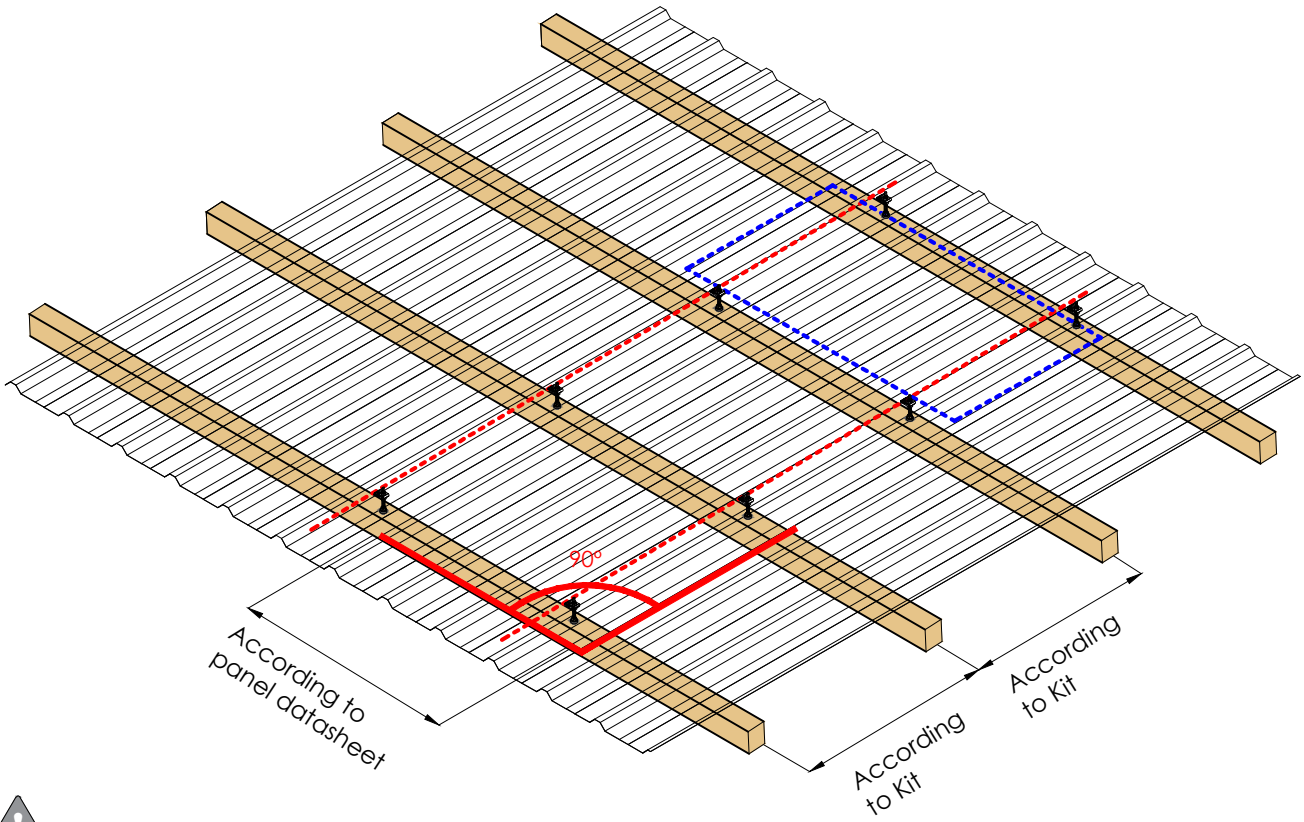
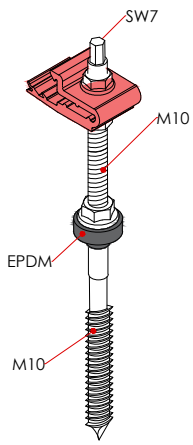
Structure Installation

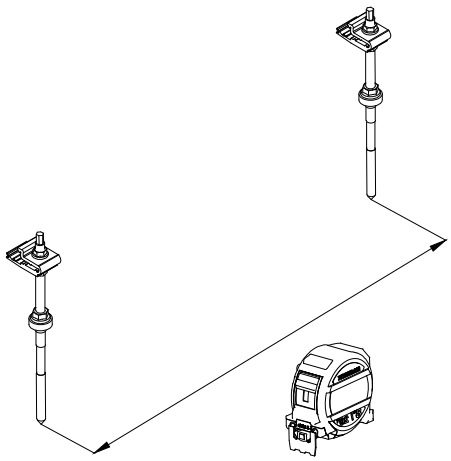


Panel
G1-EN



Note
The "L" bracket must not be attached until the anchor has been fixed.





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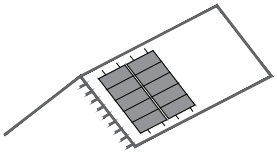

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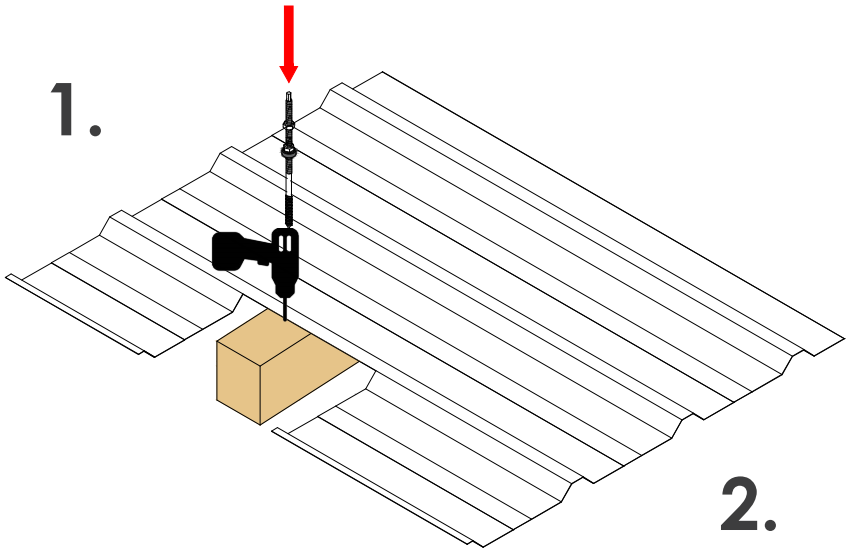
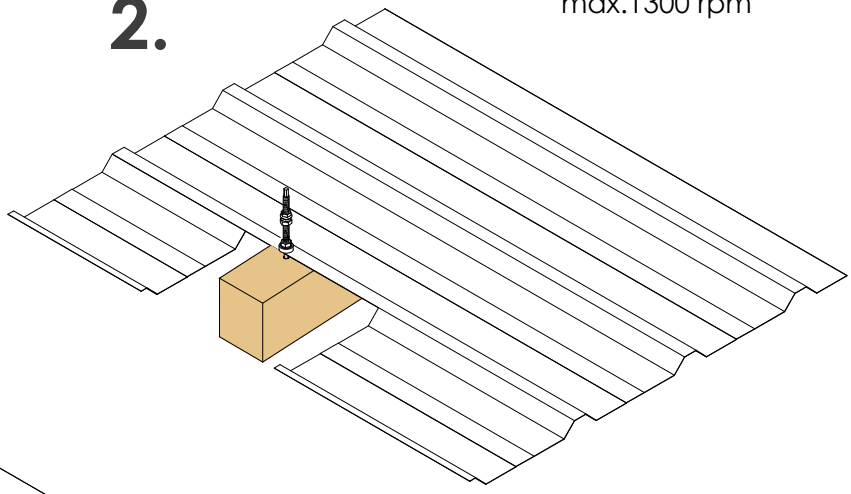


max.1300 rpm

2.



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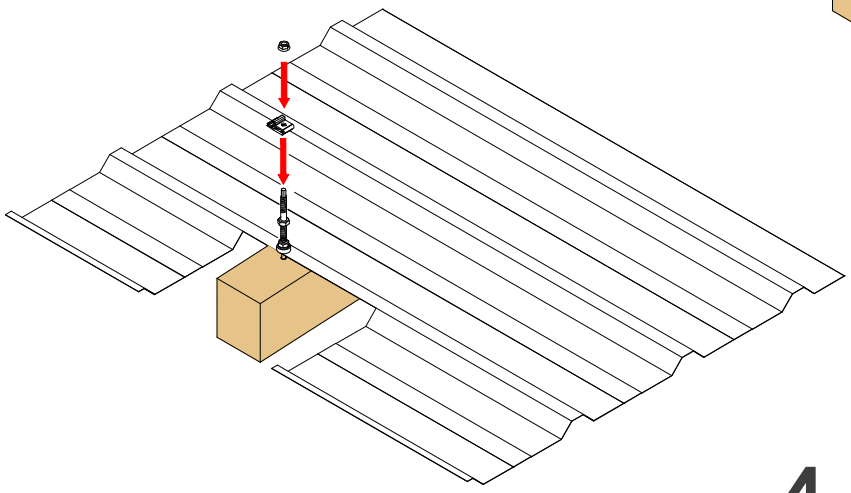

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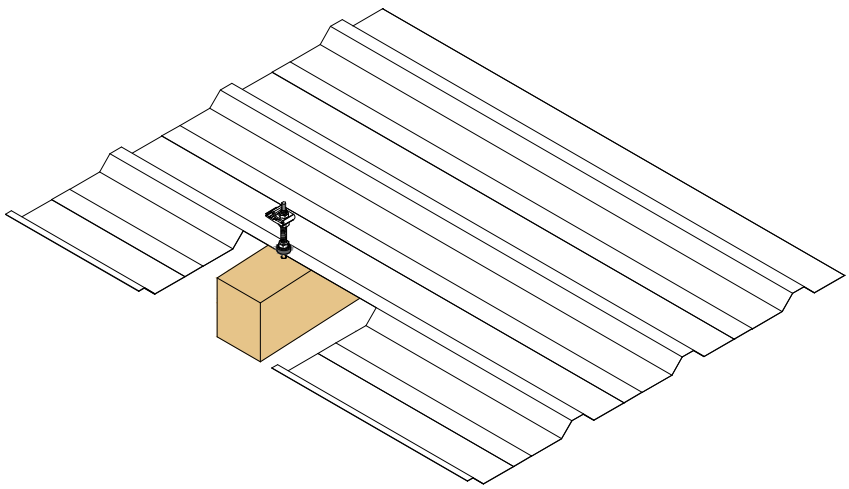

*Must withstand reactions at the attachment point

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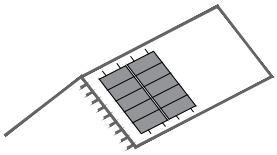

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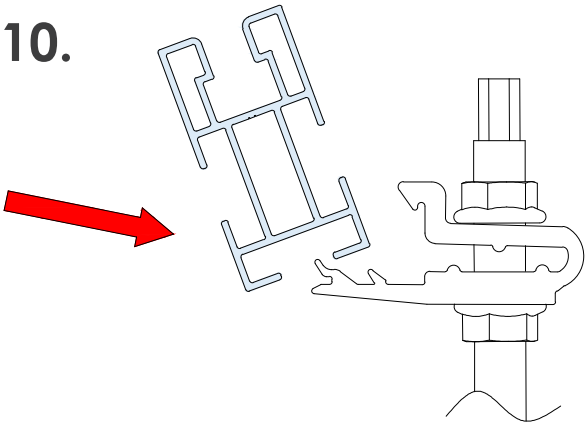

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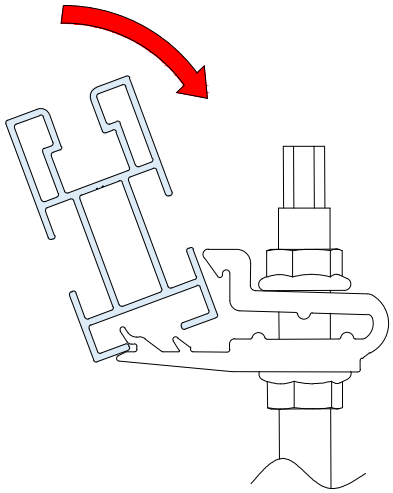

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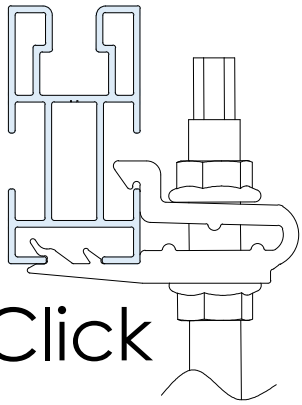
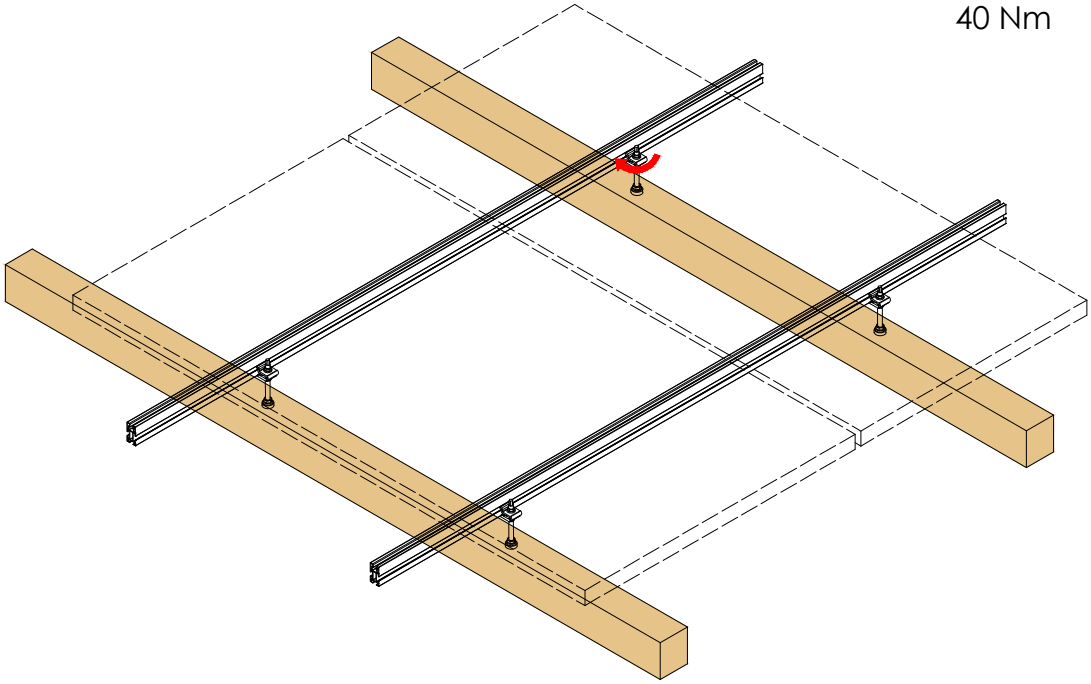


* Click

40 Nm



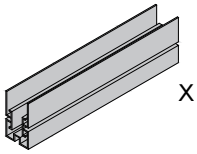
SUNFER
Solar Mounting Systems

01V-EN

6 Nm

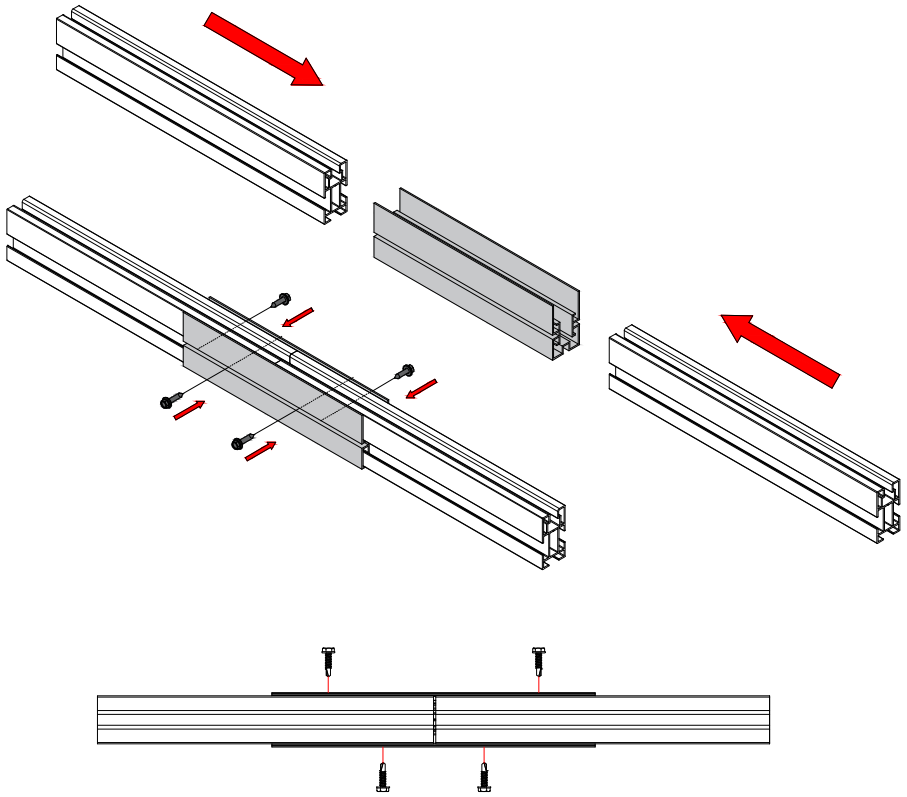
(x4)

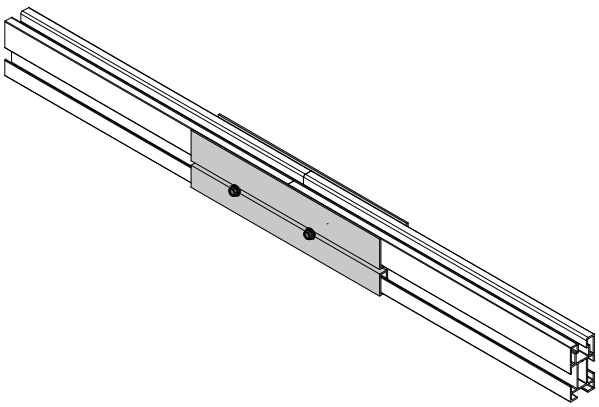
UG1-EN



x1

x4





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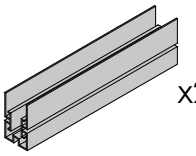
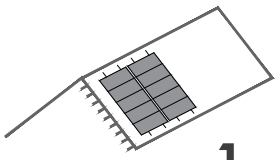
Joining Kit
Optional Step: To join two or more kits

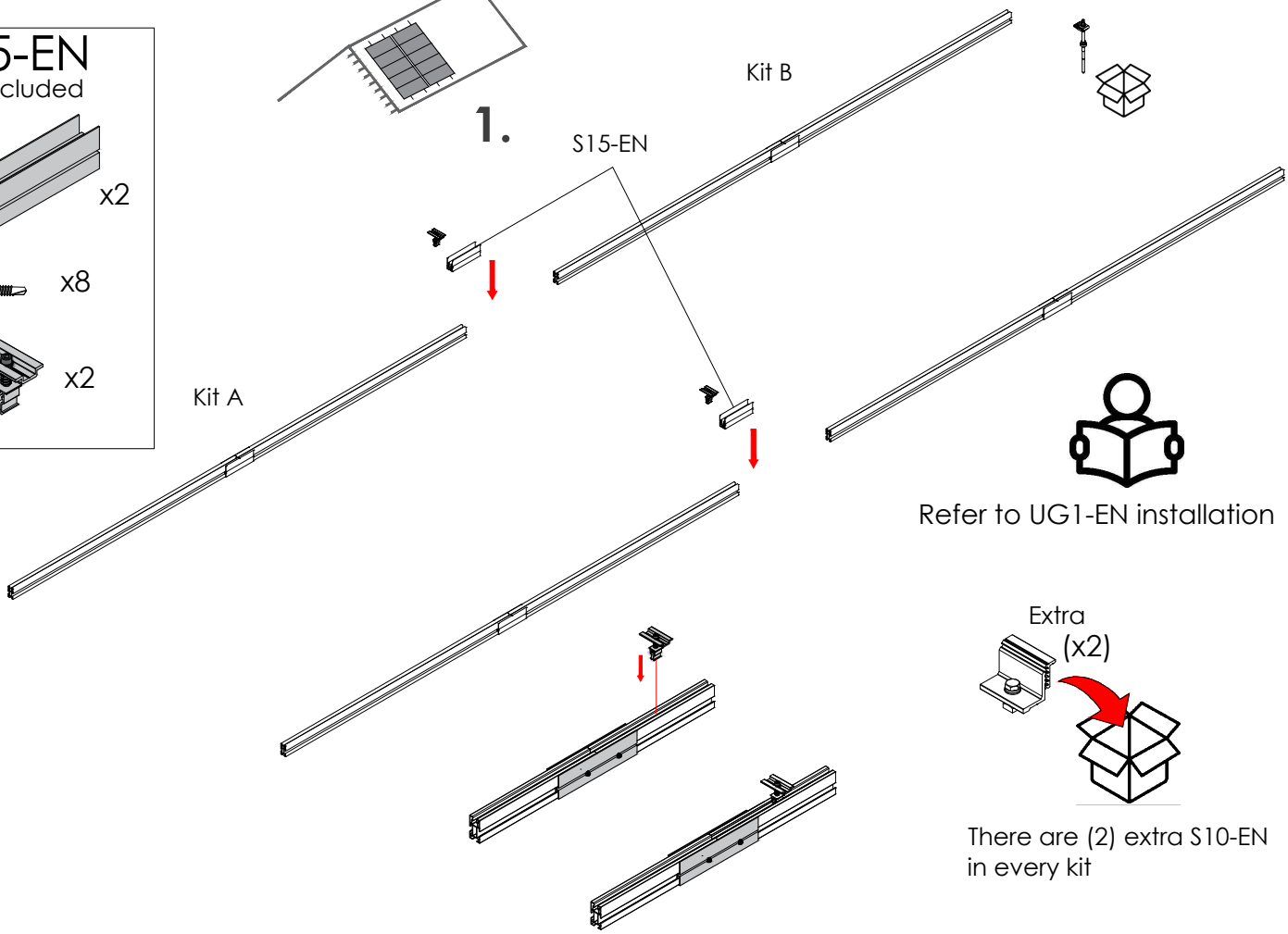
01V-EN

S15-EN
Not included





1.



Refer to UG1-EN installation

Extra
(x2)

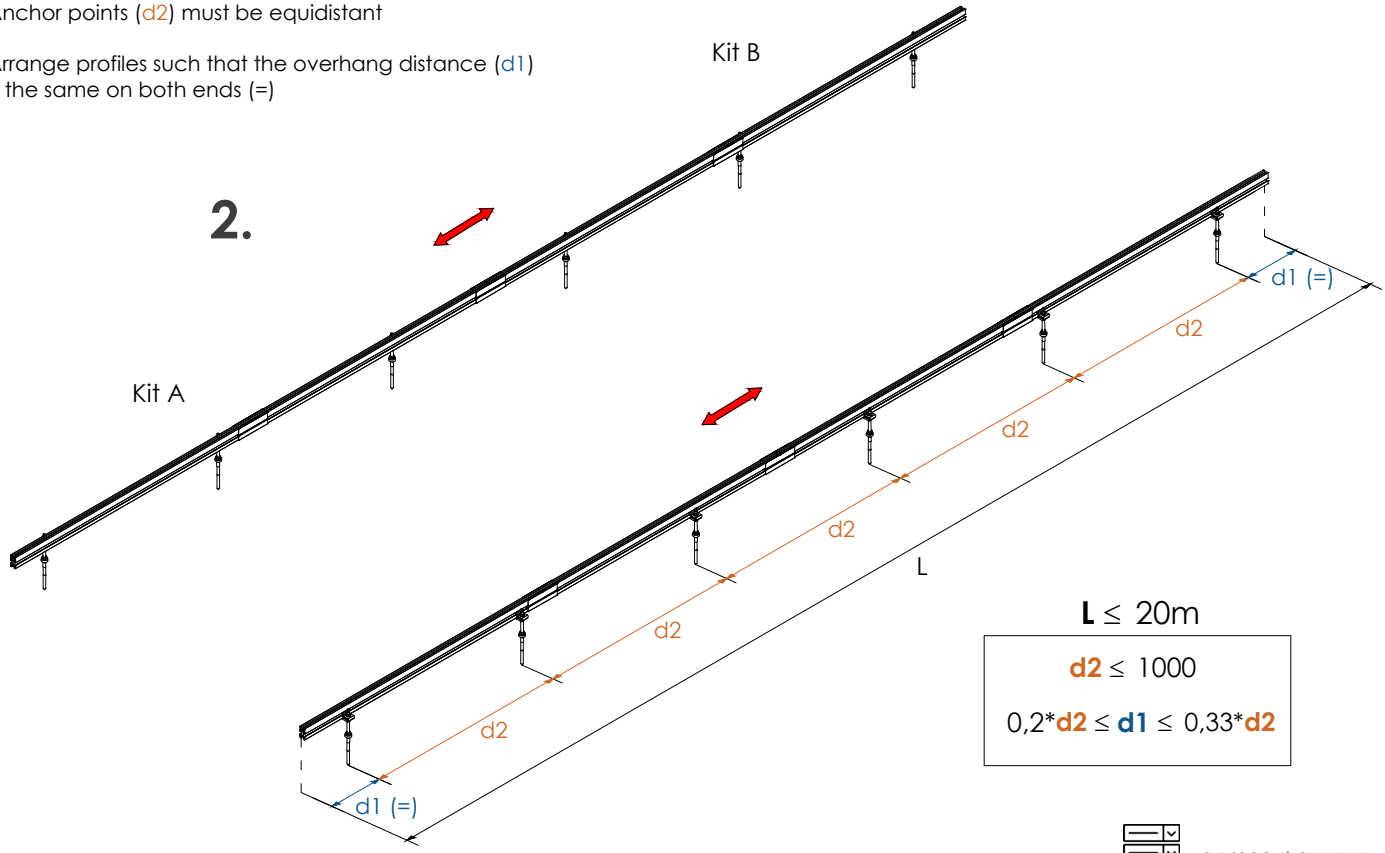
There are (2) extra S10-EN in every kit

Joining of kits:

Anchor points (d2) must be equidistant

Arrange profiles such that the overhang distance (d1) is the same on both ends (=)

2.



L ≤ 20m

d2 ≤ 1000

0,2***d2*** ≤ **d1** ≤ 0,33***d2***

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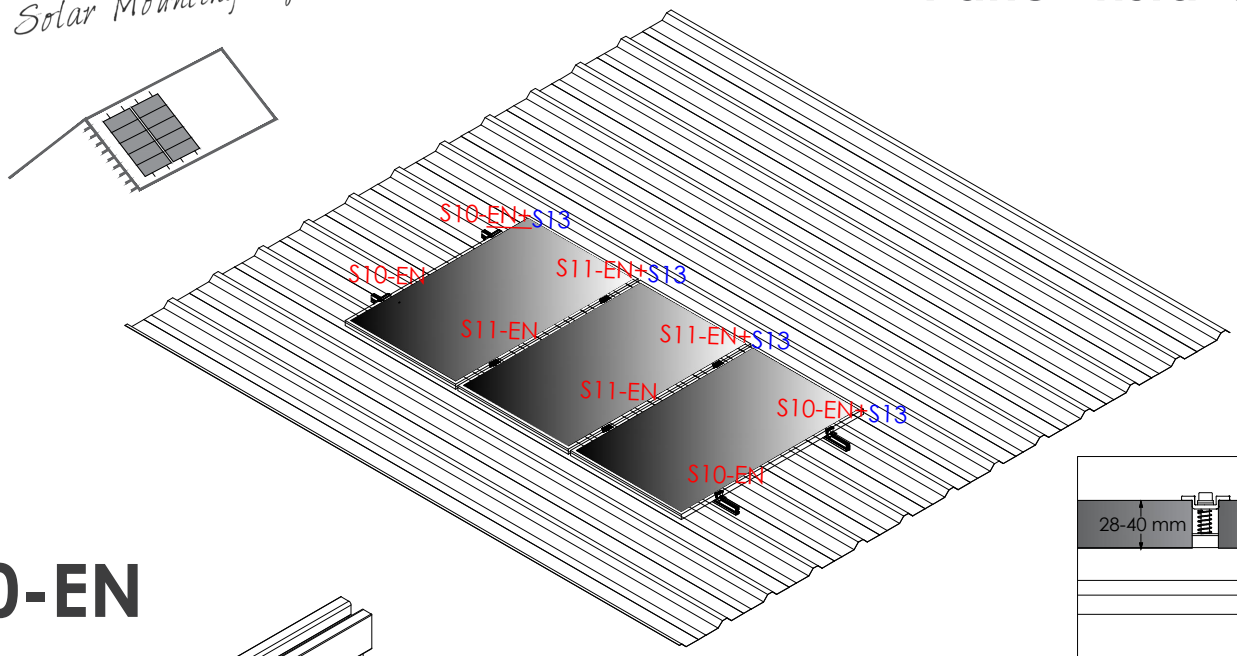
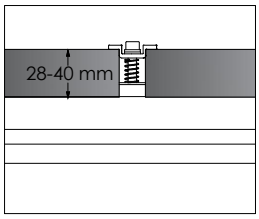
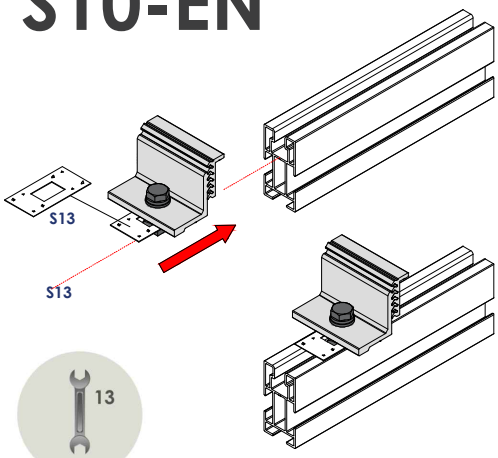
Panel Installation

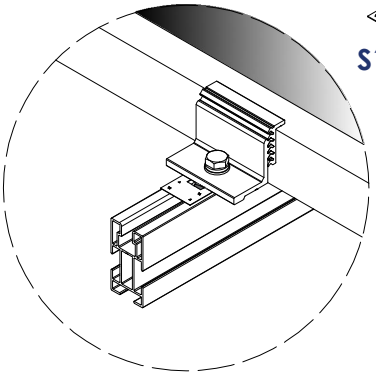




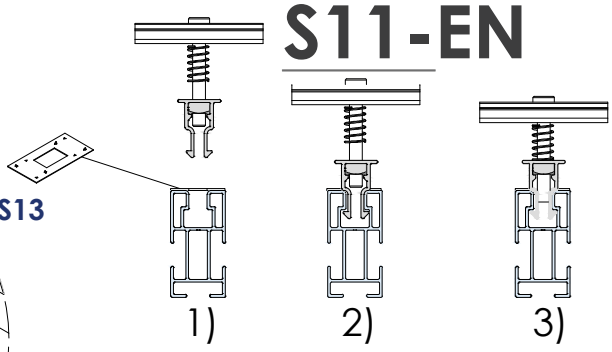
S10-EN



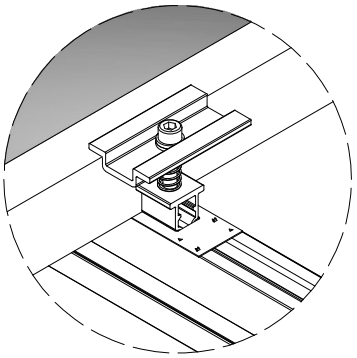
7 Nm

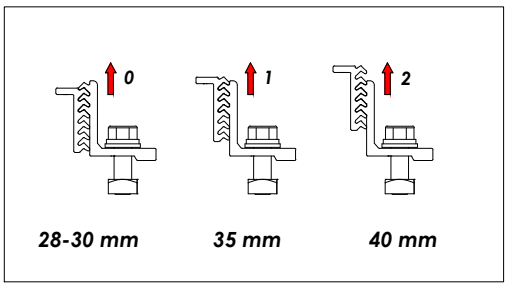


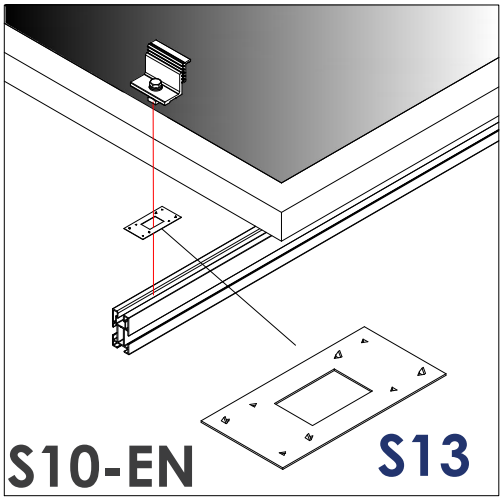
S11-EN

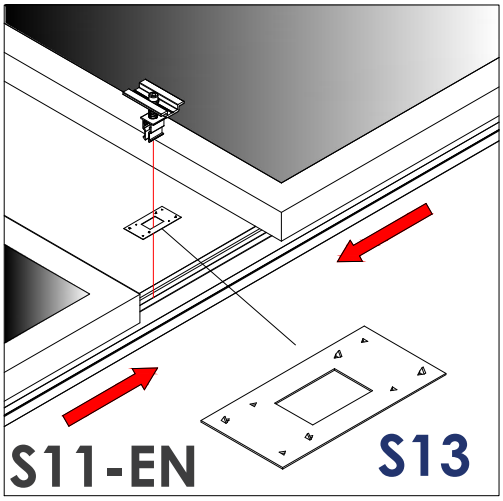


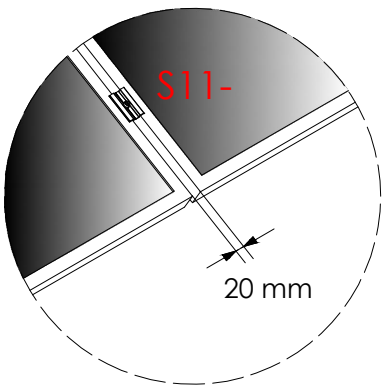
7 Nm











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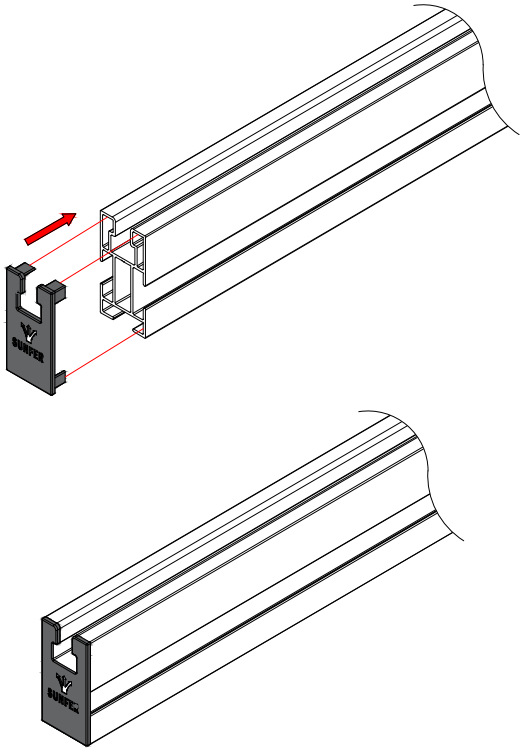
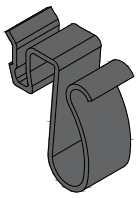
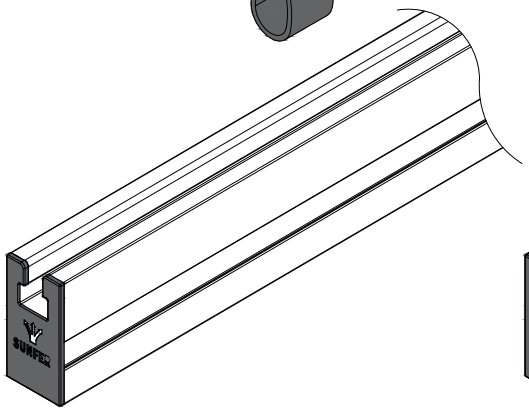
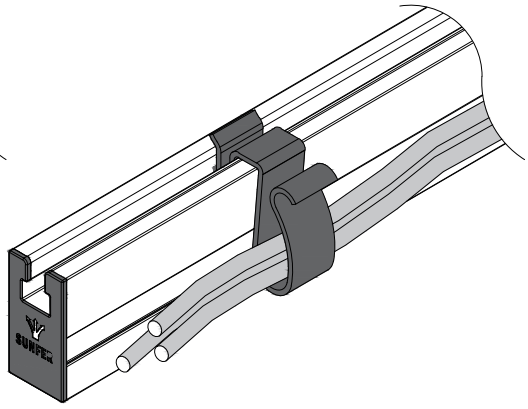




Optional
Cable Clip
(Not Included)





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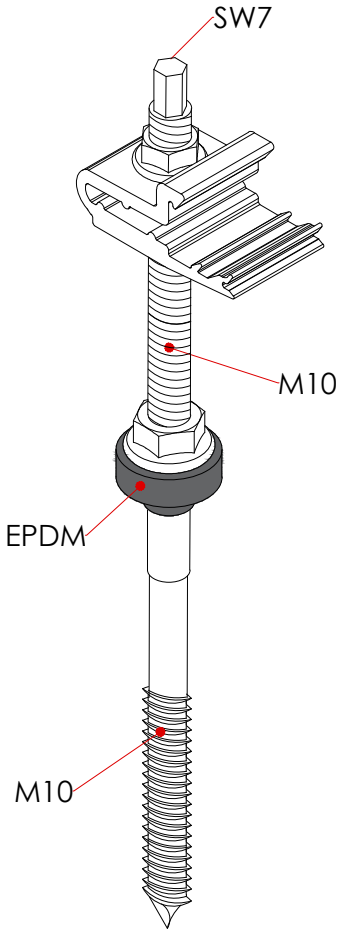
Solar Mounting Systems

01V-EN
S01-EN
Technical Information: Anchor



Characteristics
Hexagonal Head.
A2-70 Stainless Steel.
Application Surfaces:
- Wood with a maximum density of 350 kg/m³. Wood type C24 or greater
- HA-25 Concrete Slab

Technical Specifications:
Screw Length: 250 mm.
Screw Diameter: 10 mm.
Pre-drill Diameter:
Wood: 7 mm
Concrete: See anchor datasheet

Yield Moment $M_{y,RK}$*
5.80 [kN.cm]

Tension and Compression Strengths*

K_{mod}=0.7	**Effective Embedment Depth** lef **[mm]**									
	40	**43**	**46**	**49**	**52**	**55**	**58**	**61**	**64**	**67**
N_{RK} [kN]	2.40	2.58	2.76	2.94	3.12	3.30	3.48	3.66	3.84	4.02

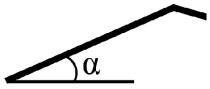
*Data valid for wood of C24 or greater

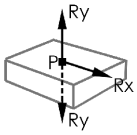
Description	Coplanar Support
Panel Disposition	Portrait/Landscape
Format	KIT of 1 to 4 panels
Joining Kit	S15-EN not included (optional)
Application Surface	Tile and Metal Sheet
Anchoring Surface	Concrete Slab and Wooden Beam
Type of Fastening	Screwed
Fastener	S01-EN
Profile	G1-EN
Grounding piece	S13
Maximum Panel Dimensions	2279x1150 mm
Panel Thickness	from 28 to 40 mm
Materials	Fasteners: A2-70 Stainless Steel Profiles: Raw or Anodized EN AW 6005A T6 Aluminium EPDM Weather Seal
Maximum Loads	According to Application
Structural Calculation	Computational models checked against EUROCODE 9 "Structures of Aluminium"

SUNFER
Solar Mounting Systems

01V-EN
Loads and Reactions

Maximum admissible loads and their reactions





5° Pitch

10° Pitch

15° Pitch

20° Pitch

25° Pitch

30° Pitch

35° Pitch

40° Pitch

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Solar Mounting Systems

01V-EN
Loads and Reactions

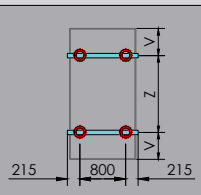
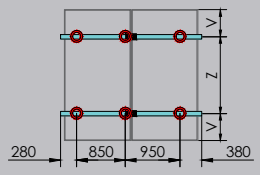
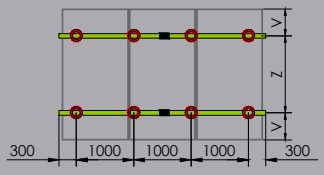
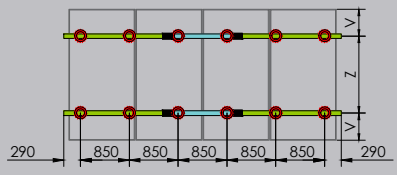
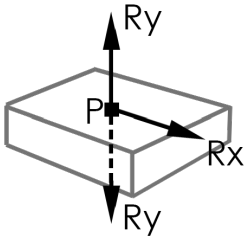
Maximum Admissible Loads and Reactions					5°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	265	0.32	0.00	1.86
	130	265	0.26	0.03	1.53
	150	265	0.26	0.10	1.54
	180	265	0.26	0.22	1.57
	210	265	0.26	0.36	1.60
	250	265	0.26	0.58	1.65
2 	110	220	0.33	0.00	2.40
	130	265	0.32	0.04	2.34
	150	265	0.32	0.12	2.36
	180	264	0.32	0.27	2.40
	210	258	0.31	0.44	2.40
	250	248	0.30	0.72	2.40
3 	110	191	0.29	0.00	2.40
	130	237	0.29	0.04	2.40
	150	234	0.28	0.12	2.40
	180	228	0.28	0.27	2.40
	210	222	0.27	0.44	2.40
	250	212	0.26	0.71	2.40
4 	110	229	0.25	0.00	2.40
	130	265	0.23	0.03	2.25
	150	265	0.23	0.09	2.27
	180	265	0.23	0.20	2.31
	210	265	0.23	0.32	2.36
	250	260	0.23	0.52	2.40

Table 1 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

SUNFER
Solar Mounting Systems

01V-EN
Loads and Reactions

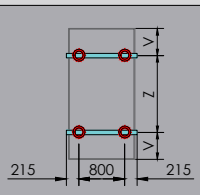
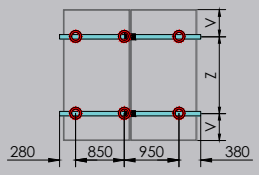
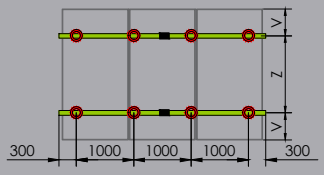
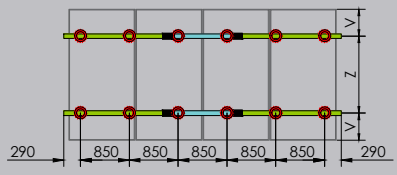
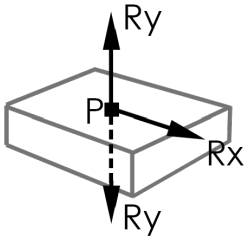
Maximum Admissible Loads and Reactions					10°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	265	0.63	0.00	1.82
	130	265	0.51	0.03	1.49
	150	265	0.51	0.10	1.51
	180	265	0.51	0.22	1.54
	210	265	0.51	0.36	1.57
	250	265	0.51	0.58	1.62
2 	110	225	0.67	0.00	2.40
	130	265	0.63	0.04	2.29
	150	265	0.63	0.13	2.31
	180	265	0.63	0.27	2.35
	210	264	0.63	0.45	2.40
	250	254	0.61	0.72	2.40
3 	110	196	0.58	0.00	2.40
	130	242	0.58	0.04	2.40
	150	239	0.57	0.12	2.40
	180	234	0.56	0.27	2.40
	210	227	0.54	0.44	2.40
	250	217	0.52	0.71	2.40
4 	110	235	0.51	0.00	2.40
	130	265	0.46	0.03	2.20
	150	265	0.46	0.09	2.23
	180	265	0.46	0.20	2.27
	210	265	0.46	0.32	2.31
	250	265	0.46	0.52	2.39

Table 2 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

SUNFER
Solar Mounting Systems

01V-EN
Loads and Reactions

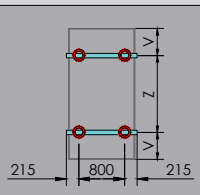
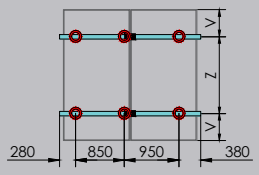
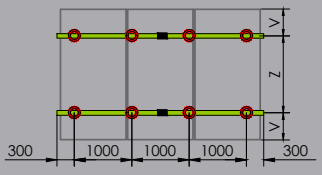
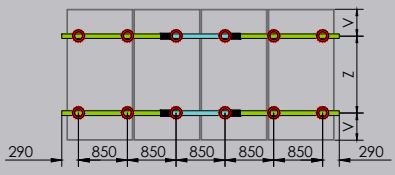
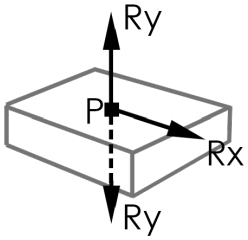
Maximum Admissible Loads and Reactions					15°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	265	0.92	0.02	1.78
	130	265	0.75	0.09	1.47
	150	265	0.75	0.18	1.50
	180	265	0.75	0.33	1.55
	210	265	0.75	0.51	1.61
	250	265	0.75	0.80	1.70
2 	110	229	1.00	0.03	2.38
	130	265	0.93	0.12	2.26
	150	265	0.93	0.22	2.30
	180	265	0.93	0.41	2.37
	210	257	0.90	0.64	2.40
	250	238	0.84	0.99	2.40
3 	110	200	0.87	0.03	2.40
	130	245	0.85	0.12	2.40
	150	240	0.84	0.22	2.40
	180	230	0.80	0.41	2.40
	210	218	0.76	0.63	2.40
	250	200	0.71	0.98	2.40
4 	110	240	0.76	0.02	2.40
	130	265	0.67	0.09	2.17
	150	265	0.67	0.16	2.21
	180	265	0.67	0.30	2.29
	210	265	0.67	0.46	2.37
	250	251	0.64	0.72	2.40

Table 3 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

SUNFER
Solar Mounting Systems

01V-EN
Loads and Reactions

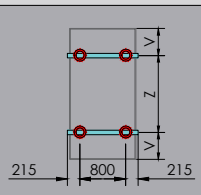
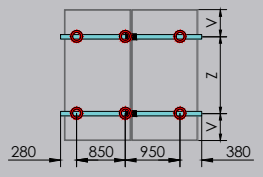
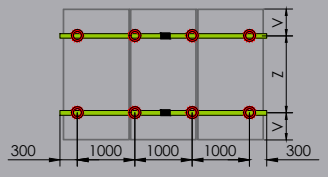
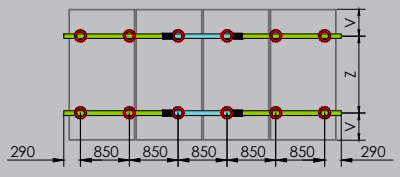
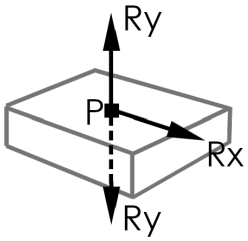
Maximum Admissible Loads and Reactions						20°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)	
1 	110	220	1.00	0.03	1.43
	130	265	0.96	0.10	1.40
	150	265	0.96	0.19	1.43
	180	265	0.96	0.34	1.48
	210	265	0.96	0.52	1.53
	250	265	0.96	0.80	1.62
2 	110	175	1.00	0.03	1.78
	130	218	1.00	0.12	1.81
	150	218	1.00	0.23	1.85
	180	218	1.00	0.42	1.93
	210	218	1.00	0.64	2.02
	250	218	1.00	0.99	2.15
3 	110	177	1.00	0.03	2.05
	130	221	1.00	0.12	2.09
	150	221	1.00	0.23	2.13
	180	221	1.00	0.41	2.22
	210	221	1.00	0.64	2.32
	250	212	0.96	0.98	2.40
4 	110	245	1.00	0.02	2.32
	130	265	0.87	0.09	2.07
	150	265	0.87	0.17	2.11
	180	265	0.87	0.31	2.18
	210	265	0.87	0.47	2.26
	250	265	0.87	0.72	2.39

Table 4 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Loads and Reactions

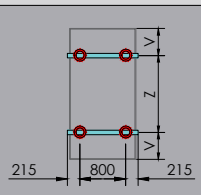
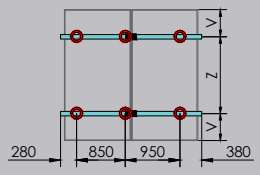
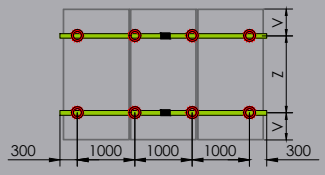
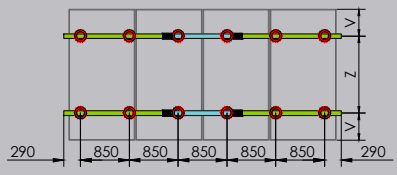
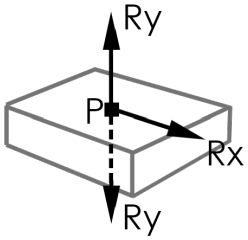
Maximum Admissible Loads and Reactions					25°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	182	1.00	0.03	1.13
	130	228	1.00	0.11	1.15
	150	228	1.00	0.19	1.18
	180	228	1.00	0.34	1.23
	210	228	1.00	0.52	1.28
	250	228	1.00	0.81	1.37
2 	110	144	1.00	0.04	1.41
	130	180	1.00	0.13	1.45
	150	180	1.00	0.24	1.49
	180	180	1.00	0.43	1.56
	210	180	1.00	0.65	1.65
	250	180	1.00	1.00	1.79
3 	110	145	1.00	0.04	1.62
	130	182	1.00	0.13	1.66
	150	182	1.00	0.23	1.71
	180	182	1.00	0.42	1.79
	210	182	1.00	0.64	1.89
	250	182	1.00	0.99	2.05
4 	110	203	1.00	0.03	1.83
	130	254	1.00	0.10	1.87
	150	254	1.00	0.17	1.91
	180	254	1.00	0.31	1.98
	210	254	1.00	0.47	2.06
	250	254	1.00	0.73	2.19

Table 5 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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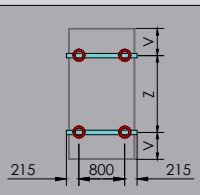
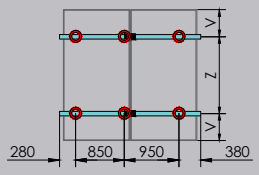
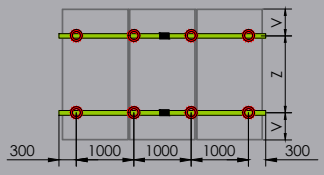
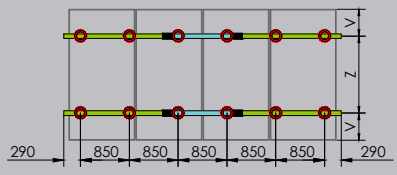
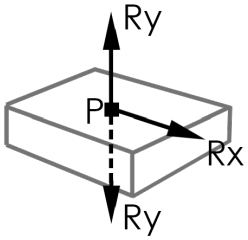
Maximum Admissible Loads and Reactions					30°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	159	1.00	0.00	0.96
	130	198	1.00	0.00	0.99
	150	198	1.00	0.04	1.03
	180	198	1.00	0.13	1.11
	210	198	1.00	0.23	1.20
	250	198	1.00	0.39	1.34
2 	110	125	1.00	0.00	1.21
	130	156	1.00	0.00	1.27
	150	156	1.00	0.06	1.33
	180	156	1.00	0.16	1.45
	210	156	1.00	0.28	1.59
	250	156	1.00	0.48	1.82
3 	110	126	1.00	0.00	1.39
	130	158	1.00	0.00	1.45
	150	158	1.00	0.05	1.53
	180	158	1.00	0.16	1.66
	210	158	1.00	0.28	1.82
	250	158	1.00	0.47	2.07
4 	110	177	1.00	0.00	1.55
	130	221	1.00	0.00	1.60
	150	221	1.00	0.04	1.66
	180	221	1.00	0.12	1.77
	210	221	1.00	0.21	1.91
	250	221	1.00	0.35	2.11

Table 6 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Loads and Reactions

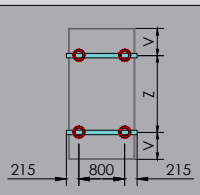
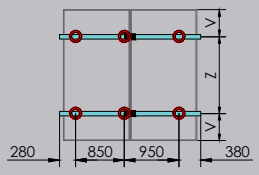
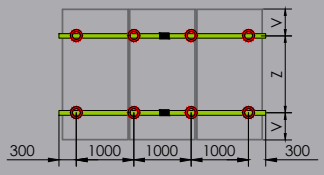
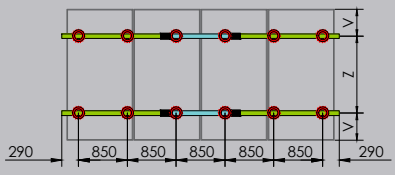
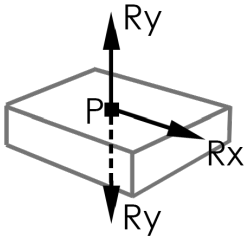
Maximum Admissible Loads and Reactions					35°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	173	1.00	0.00	0.81
	130	216	1.00	0.00	0.84
	150	216	1.00	0.05	0.88
	180	216	1.00	0.14	0.96
	210	216	1.00	0.24	1.05
	250	216	1.00	0.39	1.19
2 	110	135	1.00	0.00	1.02
	130	169	1.00	0.01	1.08
	150	169	1.00	0.07	1.14
	180	169	1.00	0.17	1.26
	210	169	1.00	0.29	1.40
	250	169	1.00	0.49	1.72
3 	110	137	1.00	0.00	1.17
	130	171	1.00	0.01	1.23
	150	171	1.00	0.06	1.31
	180	171	1.00	0.17	1.44
	210	171	1.00	0.29	1.60
	250	171	1.00	0.48	1.96
4 	110	193	1.00	0.00	1.30
	130	242	1.00	0.00	1.35
	150	242	1.00	0.05	1.42
	180	242	1.00	0.12	1.53
	210	242	1.00	0.21	1.66
	250	242	1.00	0.36	1.87

Table 7 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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Loads and Reactions

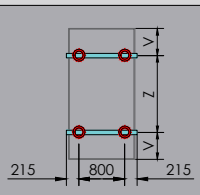
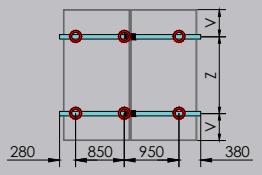
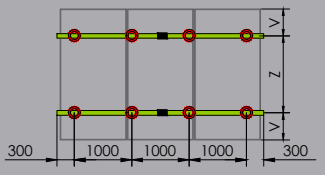
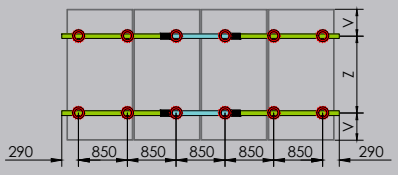
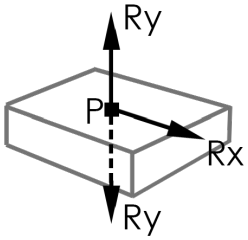
Maximum Admissible Loads and Reactions					40°
Kit	Loads (Km/h)	Loads (Kg/m2)	(kN/mount)	(kN/mount)	(kN/mount)
1 	110	204	1.00	0.00	0.68
	130	255	1.00	0.01	0.72
	150	255	1.00	0.06	0.76
	180	255	1.00	0.15	0.83
	210	255	1.00	0.25	0.91
	250	255	1.00	0.40	1.08
2 	110	159	1.00	0.00	0.87
	130	198	1.00	0.02	0.92
	150	198	1.00	0.08	0.98
	180	198	1.00	0.18	1.09
	210	198	1.00	0.31	1.22
	250	198	1.00	0.50	1.56
3 	110	161	1.00	0.00	1.00
	130	201	1.00	0.02	1.05
	150	201	1.00	0.08	1.12
	180	201	1.00	0.18	1.25
	210	201	1.00	0.30	1.40
	250	201	1.00	0.49	1.78
4 	110	228	1.00	0.00	1.10
	130	265	0.93	0.01	1.09
	150	265	0.93	0.06	1.15
	180	265	0.93	0.13	1.25
	210	265	0.93	0.22	1.37
	250	265	0.93	0.36	1.60

Table 8 - *Maximum admissible loads and reactions.*



- P: Mount Point
- Rx: Shear generated at anchor
- Ry: Tension generated at anchor, compression applied to roof

Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.
The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3.
The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (μ1) of EN 1991-1-3. For the consideration of the exposure coefficient, "Normal Topography" is established for winds below 125 km/h and "Topography Exposed to wind" for higher wind speeds, with the value of the exposure coefficient being calculated according to Chapter 5 Section 5.2 Table 5.1 of EN 1991-1-3.
The tabulated values are admissible for single and gable roofs that do not present any obstruction to snow sliding on the roof. If the roof has any obstruction to snow sliding, the SUNFER KEY SOFTWARE should be consulted: https://sunferkey.sunferenergy.com/

Loads and reactions calculated for the kit lengths and distances in the table.
For other distributions consult SUNFER.

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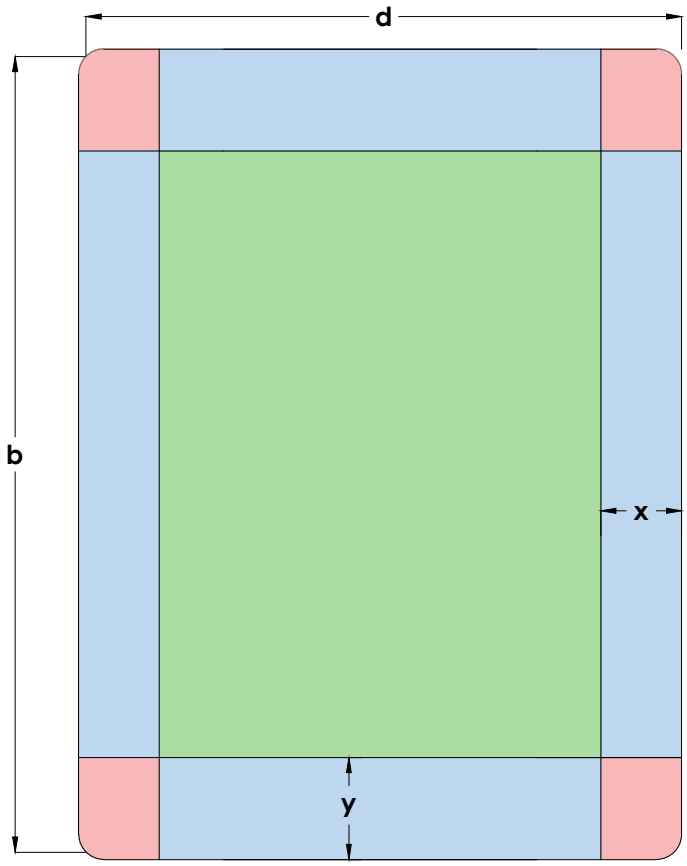
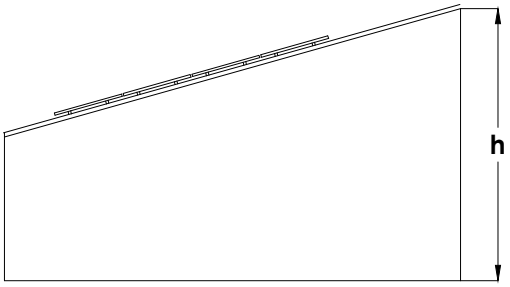
Installation Zone



e= Min [b,2h]

x = Max [e/10 , 0.5m]
y = Max [e/4 , 0.5m]



Installation Safe Zone

Turbulence Zone

Extreme Turbulence Zone

To avoid turbulence and other negative effects, PV panels must be installed inside of the green Safe Zone. PV panels must not be installed inside of the turbulent zones.

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Installation Video

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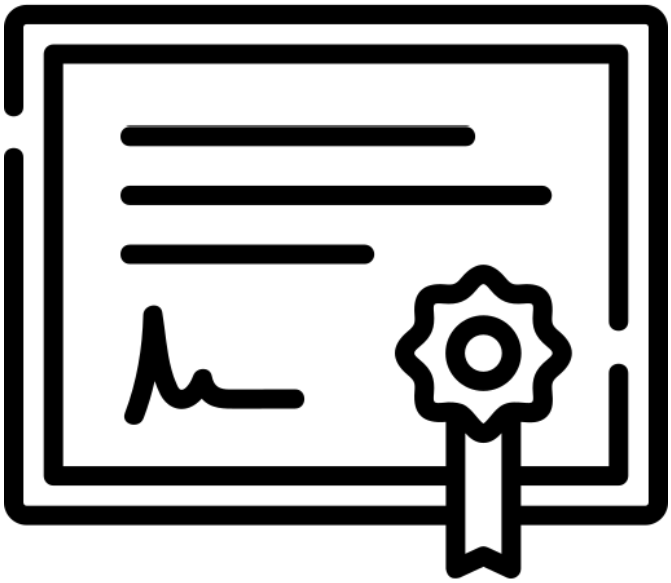
Certificates and Guarantee



- ISO 9001 Certified
- ISO 14001 Certified
- CE Marking
- Guaranteed

This is a translation of the certificate ES13/13899

The management system of

SUNFER ESTRUCTURAS, S.L.U.

Camí de la Dula, s/n, 46687 Albalat de la Ribera, Valencia

has been assessed and certified as meeting the requirements of

ISO 9001:2015

For the following activities
Design, manufacture and sale of solar energy structures.

This certificate is valid from 19 May 2023 until 8 April 2025 and remains valid subject to satisfactory surveillance audits.

Issue 6. Certified with SGS since 8 April 2013

Last certificate expiry date 8 April 2022
Recertification audit date 31 March 2022

Authorised by

SGS International Certification Services Iberica, S.A.U.
C/Trespaderne, 29. 28042 Madrid. España
t +34 91 313 8115 - www.sgs.com

This is a translation of the certificate ES22/211172

The management system of

SUNFER ESTRUCTURAS, S.L.U.

Camí de la Dula, s/n, 46687 Albalat de la Ribera, Valencia

has been assessed and certified as meeting the requirements of

ISO 14001:2015

For the following activities
Design, manufacture and sale of solar energy structures.

This certificate is valid from 19 May 2023 until 22 April 2025 and remains valid subject to satisfactory surveillance audits.

Issue 2. Certified with SGS since 22 April 2022

Authorised by

SGS International Certification Services Iberica, S.A.U.
C/Trespaderne, 29. 28042 Madrid. España
t +34 91 313 8115 - www.sgs.com

SUNFER

CE

IDENTIFICATION NUMBER OF NOTIFIED ORGANISM:

1181

NUMBER AND REGISTERED ADDRESS OF MANUFACTURERS. INSTALLATION LOCATION:

Business name: *SUNFER ESTRUCTURAS, S.L.U.*

Address: *Camí de la Dula s/n*

Postal Code: *46687*

Location: *Albalat de la Ribera*

City: *Valencia*

Country: *España*

TWO LAST DIGITS OF THE YEAR THAT THE MARKING WAS FIXED:

19

ES19/86524

EN 1090-1

Description of product: ***01V-EN***

TOLERANCES IN GEOMETRIC INFORMATION:	*EN 1090-3*
WELDABILITY:	*--*
FRACTURE RESISTANCE:	*--*
FIRE REACTION:	*Classified material A1*
CADMIUM EMISSION:	*N/A*
RADIACTIVITY EMISSION:	*N/A*
DURABILITY:	*N/A*

STRUCTURAL CHARACTERISTICS:

- **Carrying capacity:** *See product instructions and data sheet*
- **Fatigue resistance:** *N/A*
- **Fire resistance:** *N/A*
- **Manufacturing:** *According to the component specification and EN1090-3. Execution class EXC1*

DECLARATION OF PERFORMANCE NUMBER:	P-0114

1. PRODUCT DESCRIPTION.

UNIQUE IDENTIFICATION CODE OF THE PRODUCT TYPE:	01V-EN

2. NAME AND ADDRESS OF MANUFACTURER.

NAME:	SUNFER ESTRUCTURAS, S.L.U.
COMERCIAL NAME (if exists):	--
ADDRESS:	CAMI DE LA DULA S/N
CITY AND PC:	46687 ALBALAT DE LA RIBERA -- COMUNIDAD VALENCIANA (SPAIN)

3. INTENDED USE(S) OF THE PRODUCT:
ALUMINUM STRUCTURE TO SUPPORT PHOTOVOLTAIC PANELS.

4. SYSTEM OF EVALUATION AND VERIFICATION OF CONSTANCY OF PERFORMANCE:
System 2+

5. HARMONIZED STANDARD:
This product complies with the provisions of Annex ZA of the European standard **UNE-EN 1090-1:2011 + A1:2012**

6. NOTIFIED ORGANISM:

NAME:	**SGS ICS IBÉRICA. S.A.**
Notified Organism Number:	**NB1181**

7. DECLARED PERFORMANCES:

Essential Characteristics	Performances	Harmonised technical specifications
Tolerances in geometric information	Conforms to limits for essential tolerances□	EN 1090-3
Weldability	Not applicable because there is no welding in the structure	----
Fracture Tenacity	Not required for aluminum components	-----
Carrying Capacity	N/A	
Fatigue Resistance	N/A	
Fire Resistance	N/A	
Fire reaction	Class A1	EN 13501-1
Emission of cadmium and its compounds	OK	
Emission of radioactivity	OK	
Durability	N/A	
Structural features - Carrying capacity - Fatigue resistance: N/A - Fire resistance: N/A - Manufacturing	See product data sheet N/A N/A According to the component specification. Execution class EXC1	UNE EN 1999-1-1 UNE EN 1090-3

- The performance of the product identified above is in accordance with all the declared performance.
- This declaration of performance is issued in accordance with Regulation (EN) No. 305/2011 under the responsibility of the manufacturer identified above.

Manufacturer's Name: Voro Gómez Nacher
Date of issue: 02/08/2023
Signature:

Warranty Terms and Conditions

Structural and anti-corrosion warranty

The supports manufactured by SUNFER, are manufactured under strict production control in the factory as well as our raw materials that are tested and controlled periodically, so we can offer the following guarantee for our products

Structural guarantee of twenty-five (25) years.

Anti-corrosion guarantee according to table 1.

Materials	NON-HARSH environment (1) Distance to coastline Greater than 5 Km	HARSH or MARINE environment Distance to coastline Less than 5 Km
Raw Aluminium	Fifteen (15) years	Five (5) years
Anodized Aluminium	Twenty-five (25) years	Twenty-five (25) years

Table 1.

(1) Non-exhaustive list of zones considered to be harsh environments:

a. Industrial zones with emissions that include sulphur dioxide, nitrogen oxides, sulphuric acid, sulphuric compounds, chlorine, or other volatile gases; 5 km safety distance.
b. Electric generating stations that use the following fuels: coal, natural gas, petroleum: 5 km safety distance.
c. Petrochemical plants; 5 km safety distance.
d. Cellulose factories; 5 km safety distance
e. Wastewater treatment facilities: 500 m safety distance.

In these areas it is necessary to use anodised aluminium as long as the safety distance indicated above is not exceeded.

The adhesive warranty on 07.1H and S07.1 is ten (10) years. The warranty on the 2-sided adhesive tape of the S07.1 anchor covers the product supplied by Sunfer and can be applied provided that the breakage is caused by the profile tearing away from the adhesive tape. In the event that the breakage is caused by the adhesive tape tearing away from the cover, it will be considered a faulty assembly on site.

Mixed galvanised steel and raw aluminium supports such as, for example: Elevated, Monopoles, Car parks:
Environments C3 fifteen (15) years guarantee.
Environments C4-C5 five (5) years.

Mixed galvanised steel and anodised aluminium supports, such as: Elevated, Monopoles, Car parks:
Environments C3 guarantee twenty-five (25) years.
Environments C4-C5 fifteen (15) years.

This warranty applies to orders supplied from 03/01/2023, orders supplied prior to this date will be governed by the warranty document in force on the date of supply.

The warranty covers the final installation and therefore applies directly to the end user of the structure. In order to manage the warranties, the final customer will have to contact the distributor who has made the supply so that he can send it to the SUNFER Customer Service. The guarantee period starts from the date of the delivery note and it will be cancelled if the customer has not complied with the payment terms agreed in the invoice.

In order to execute the guarantee, the following documents must be sent:

- Sales invoice
- Date of commissioning.
- Details of the end customer.
- General photographs showing the entire installation.
- Detailed photographs:
  - o Fixing of the structure to the roof showing the distance between fixings.
  - o Assembled structure without photovoltaic modules.
  - o Rear view of the structure. Drawing of the affected area showing the distances between anchor points and distances between frames if applicable.

ES22/211172 ES13/13899

Marking CE ES19/86524

Coverage and exclusions

Coverage

This warranty covers the replacement and transport to the destination of the defective part or the product in its entirety free of charge. If the product is not available, a product of similar characteristics will be supplied.

The warranty is limited to the replacement of the defective product, so no costs associated with the return will be assumed: disassembly, as well as compensation for consequential damages, supplementary or related to loss of profits or other indirect costs.

The warranty covers all those metallic elements included in the SUNFER brackets.

Exclusions

The warranty does not cover any defects resulting from:

- Inadequate assembly due to not following the SUNFER installation manuals.
- Excessive or insufficient tightening torques.
- Modifications or installations other than those recommended by SUNFER.
- Installation of auxiliary elements other than the supports supplied by SUNFER.
- Improper handling of the product during installation.
- Inadequate handling of the goods. Damage to the product after the shipment, inadequate storage of the product.
- All those purely aesthetic defects that do not affect the structural safety of the product.
- Installations in locations where wind or snow loads exceed those indicated in the product data sheet.
- Inadequate maintenance, see MAINTENANCE MANUAL.
- Fire or exposure to temperatures above 110 °C.
- Problems or defects caused by pollutants not initially contemplated (1).
- Natural disasters such as earthquakes, floods, hurricanes, tornadoes, cyclones, landslides and avalanches, volcanic eruptions or earthquakes.

For those supports in which the fixation to the surface is not included, SUNFER will not be responsible in case of pulling out or collapse due to an insufficient or badly installed anchorage.

Guarantor, execution of Warranties.

The guarantor is SUNFER ESTRUCTURAS S.L.U., registered office at Camino de la Dula s/n 46687, Albalat de la Ribera,Valencia, Spain.

Claims arising in connection with this warranty cannot be transferred to third parties.

The law in force in Spain shall apply with regard to the warranty and any disputes relating to it.