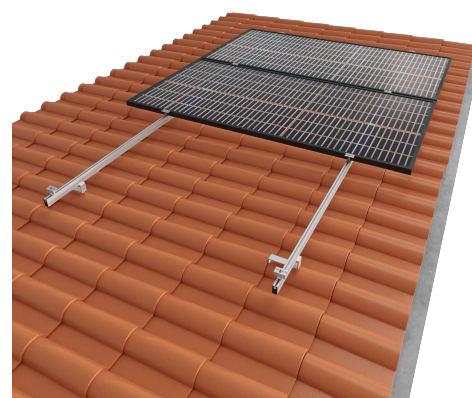
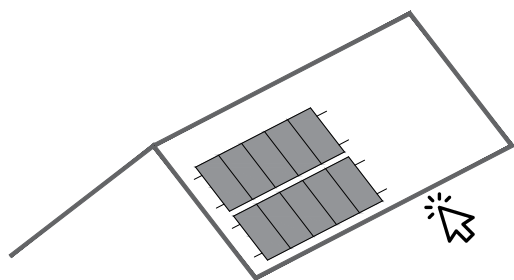


Installations

Select

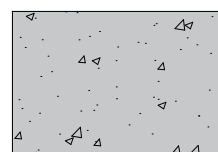
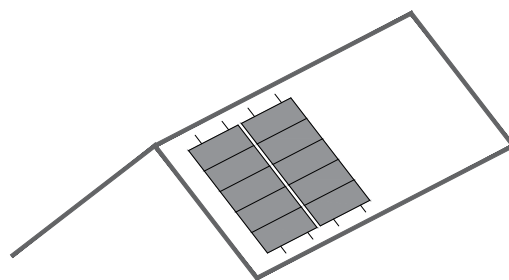


Portrait



Concrete Slab

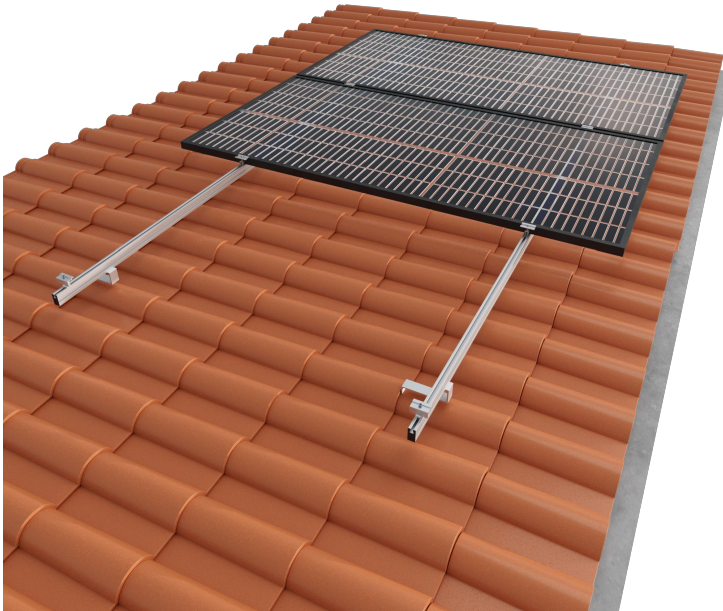
Landscape



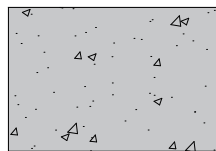
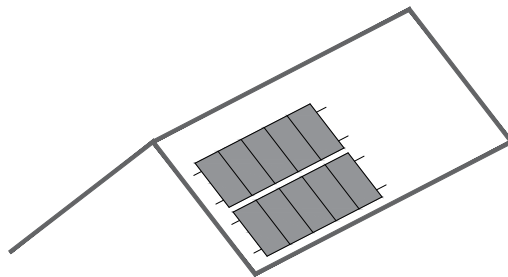
Concrete Slab



02.3V-EN



Portrait



Concrete Slab



CONTENTS

1. General Information
2. Kit Contents
3. Portrait Installation
4. Fastening Technical Information
5. Maximum Loads and Reactions
6. Installation Zone
7. Installation Video
8. Certificates and Guarantee

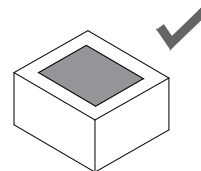
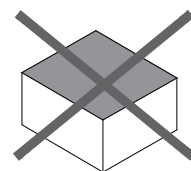
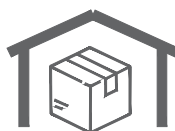
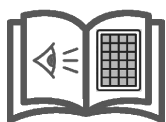
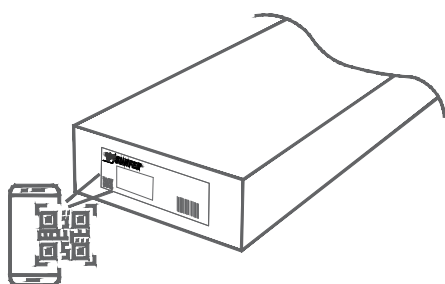


Return

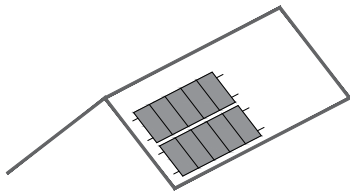


General Information and Recommendations **EN**

- 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 original 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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02.3V-EN

Kit Contents



4	4	-	-	2	-	4	4
---	---	---	---	---	---	---	---



4	4	2	2	4	-	4	6
---	---	---	---	---	---	---	---



6	4	2	2	4	-	4	6
---	---	---	---	---	---	---	---



6	4	4	2	-	4	4	8
---	---	---	---	---	---	---	---



8	4	4	2	-	4	4	8
---	---	---	---	---	---	---	---



6	4	6	4	2	4	4	10
---	---	---	---	---	---	---	----



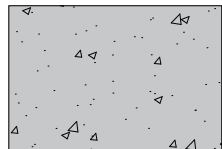
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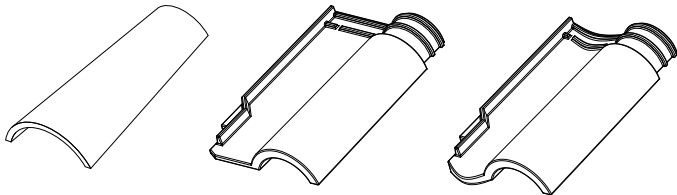
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Anchoring Surface:



Concrete Slab



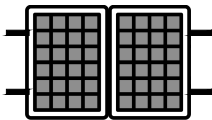
Profiles of **EN AW 6005A T6 Aluminium**



Fasteners of **A2-70 Stainless Steel**



Max.
2400x1150 mm
Thickness:
28-40 mm



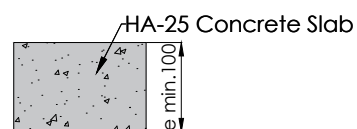
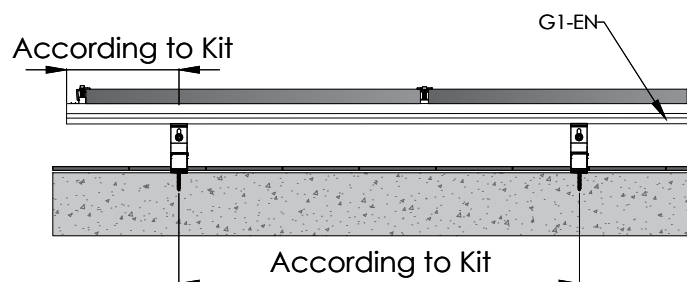
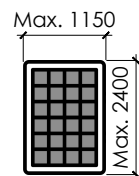
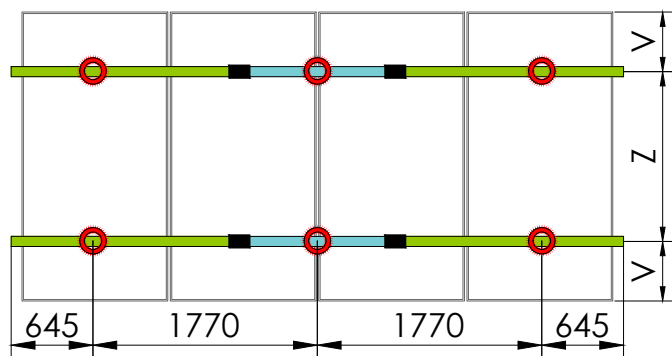
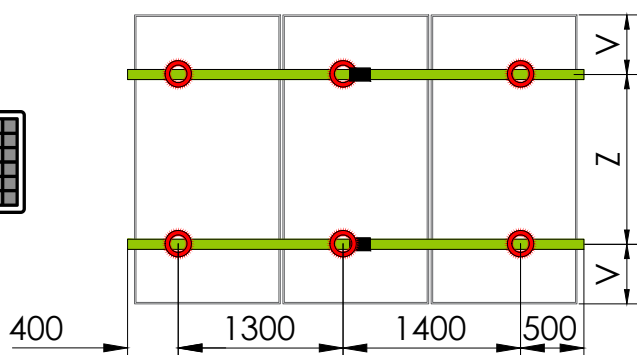
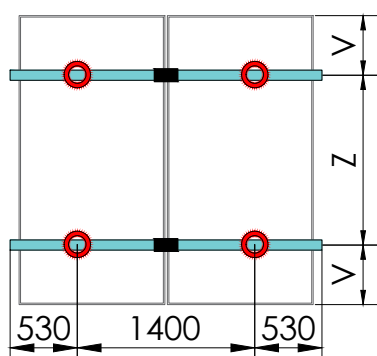
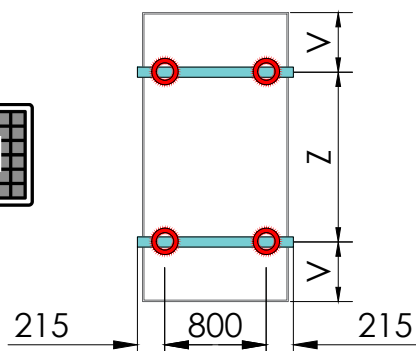
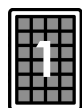
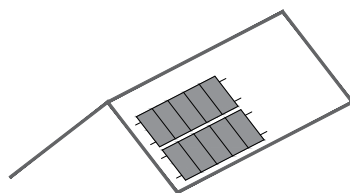


SUNFER

Portrait

02.3V-EN

Anchoring Distances



S02.3-EN



G1-1230-EN



G1-1800-EN



UG1-EN



The maximum distance "Z" between profiles and the overhang distance "V" should be determined by consulting the technical datasheets of the solar panel manufacturer.



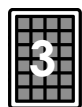
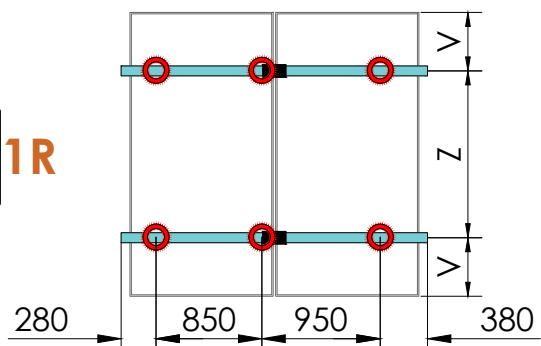
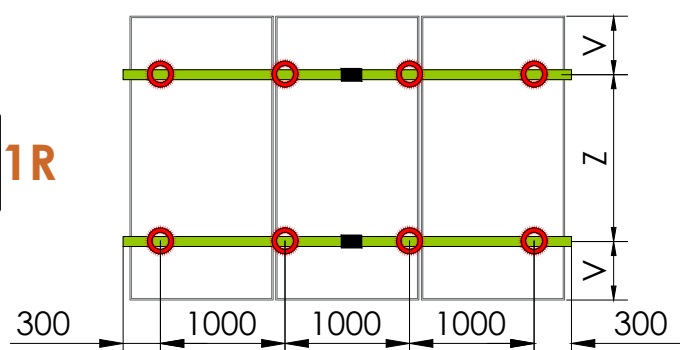
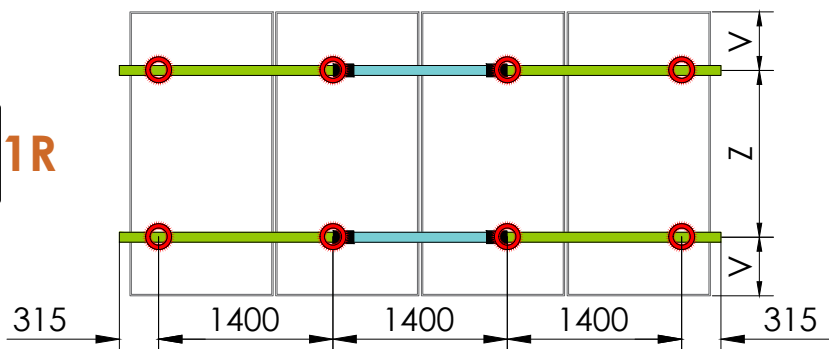
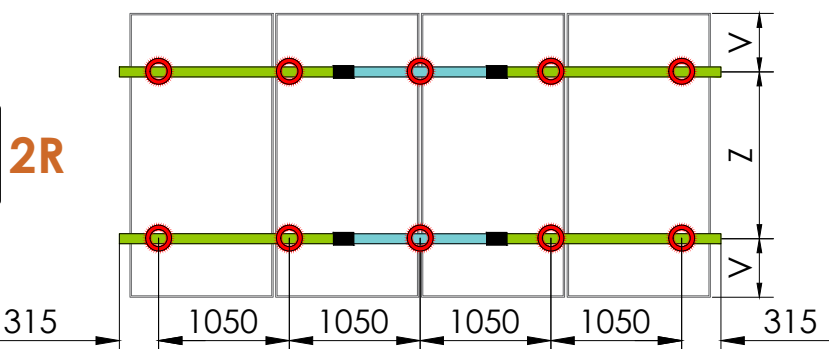


SUNFER

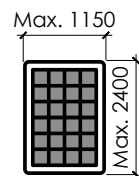
Portrait

02.3V-EN

Anchoring Distances

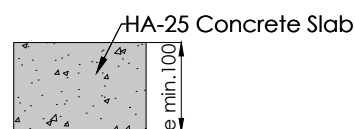
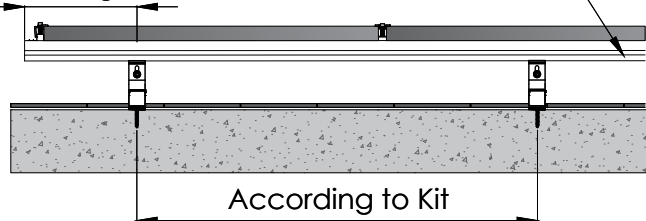

2 1R

3 1R

4 1R

4 2R


The maximum distance "Z" between profiles and the overhang distance "V" should be determined by consulting the technical datasheets of the solar panel manufacturer.



According to Kit

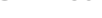
G1-EN



S02.3-EN



G1-1230-EN

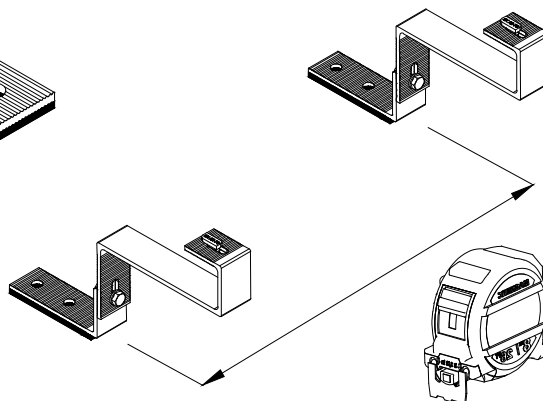
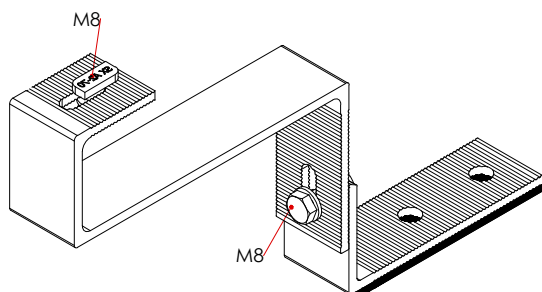
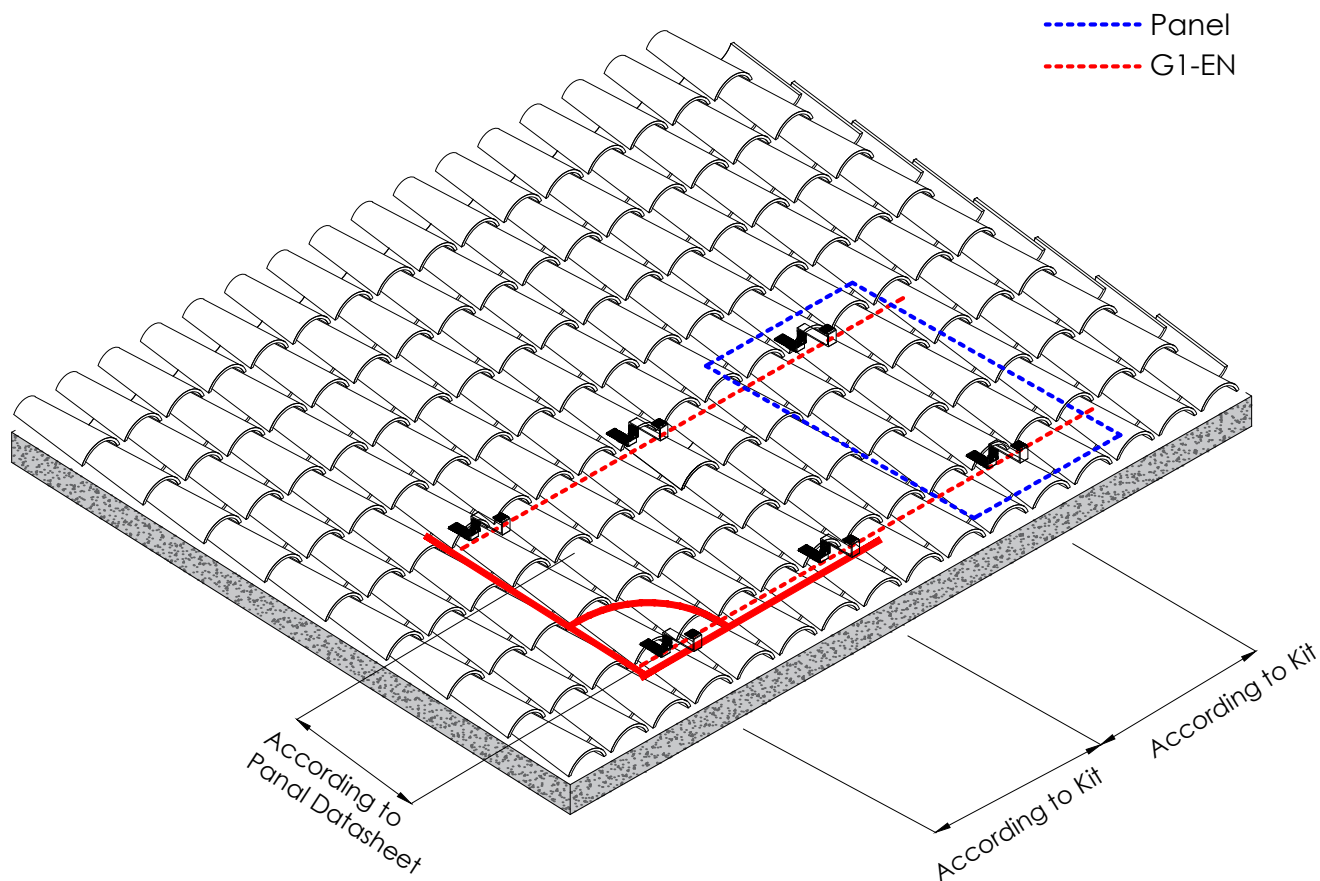
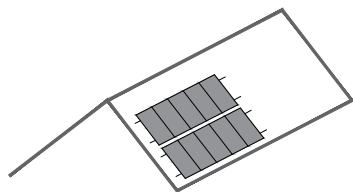


G1-1800-EN

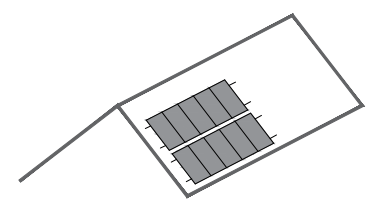
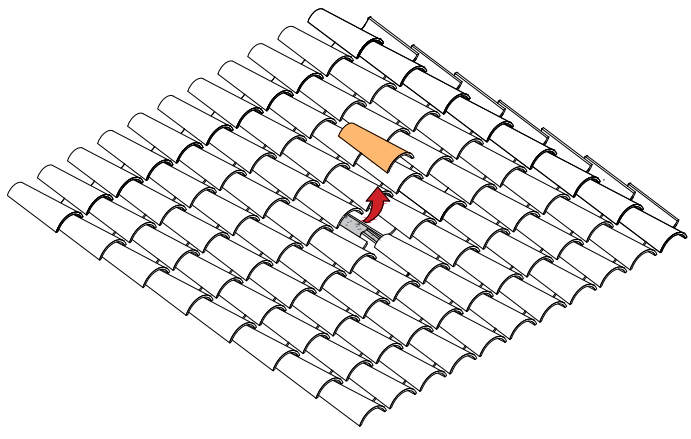


UG1-EN

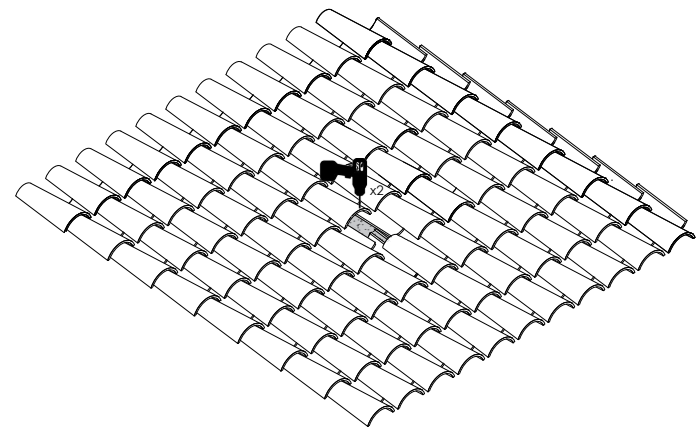




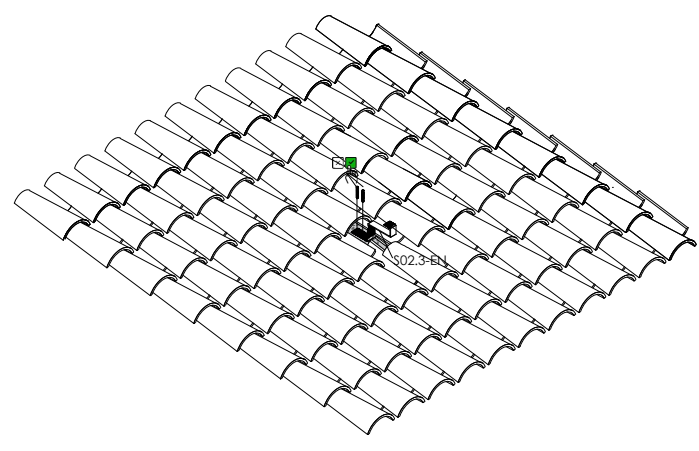
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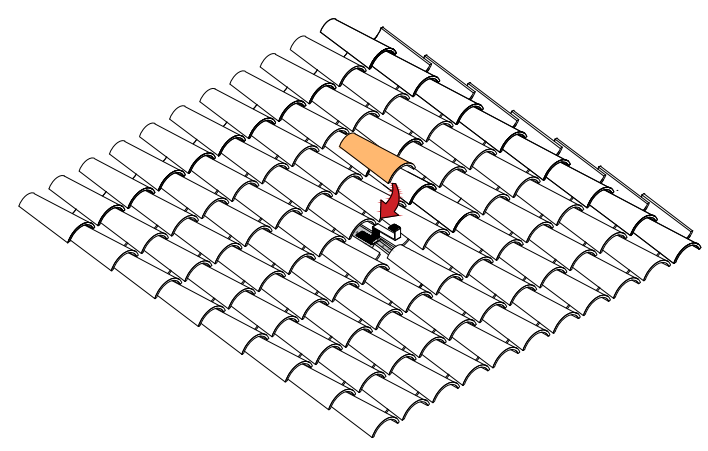
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3.

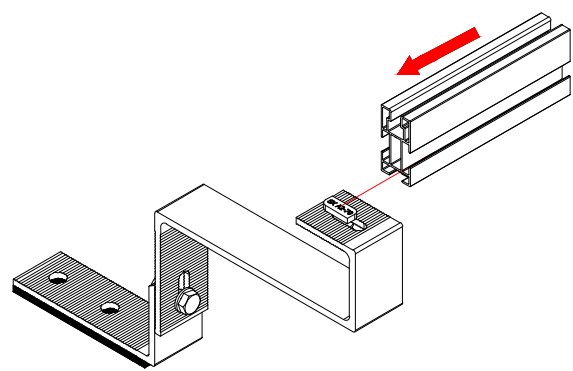
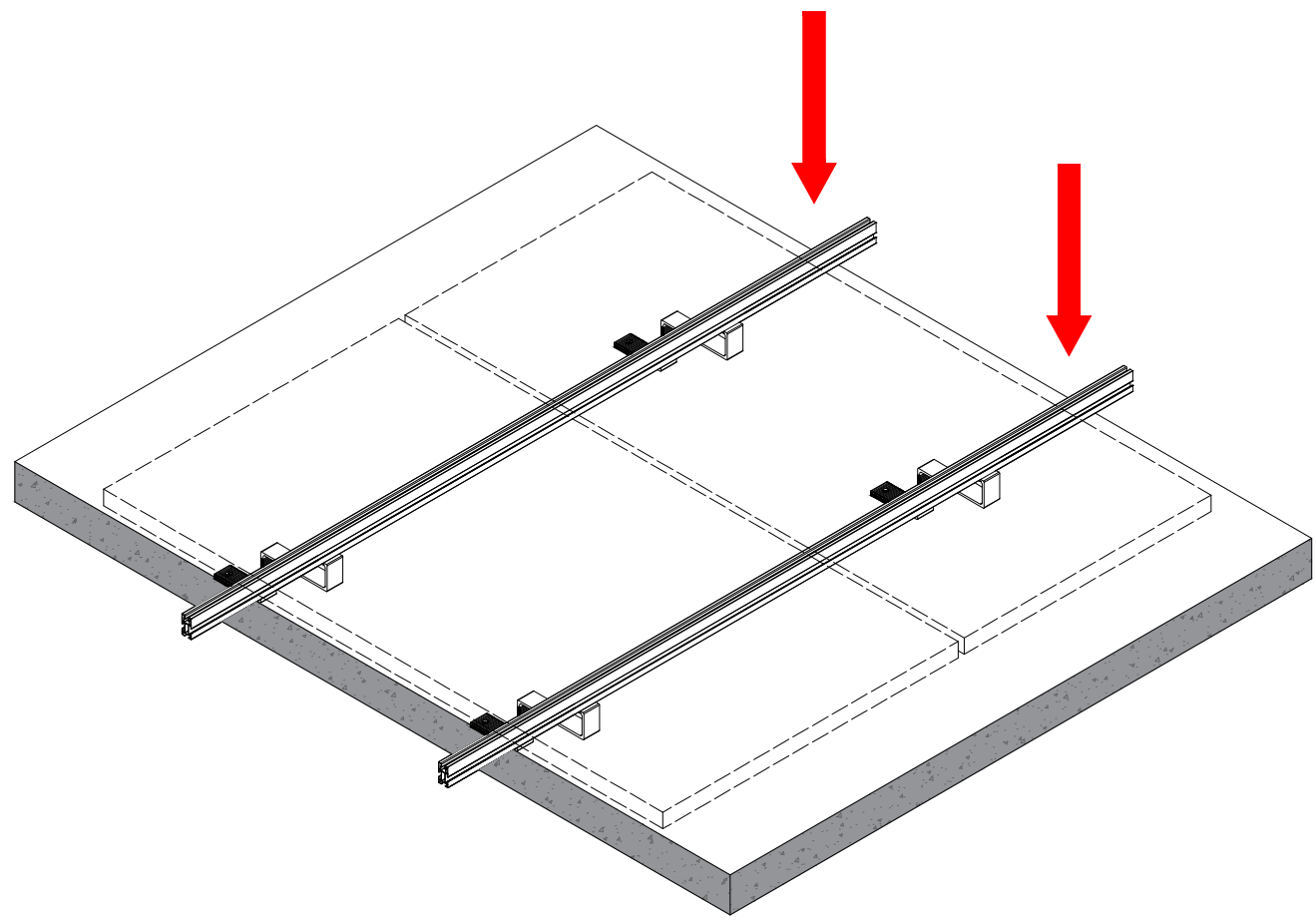
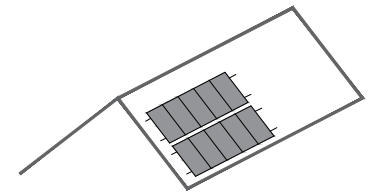
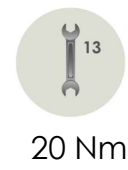
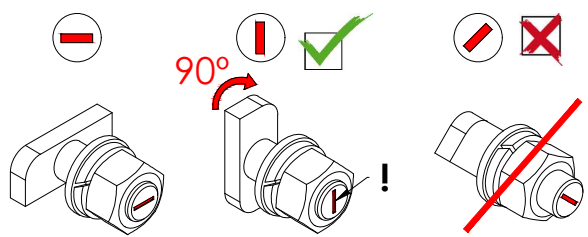


4.



*Must support the reaction forces at the anchor point

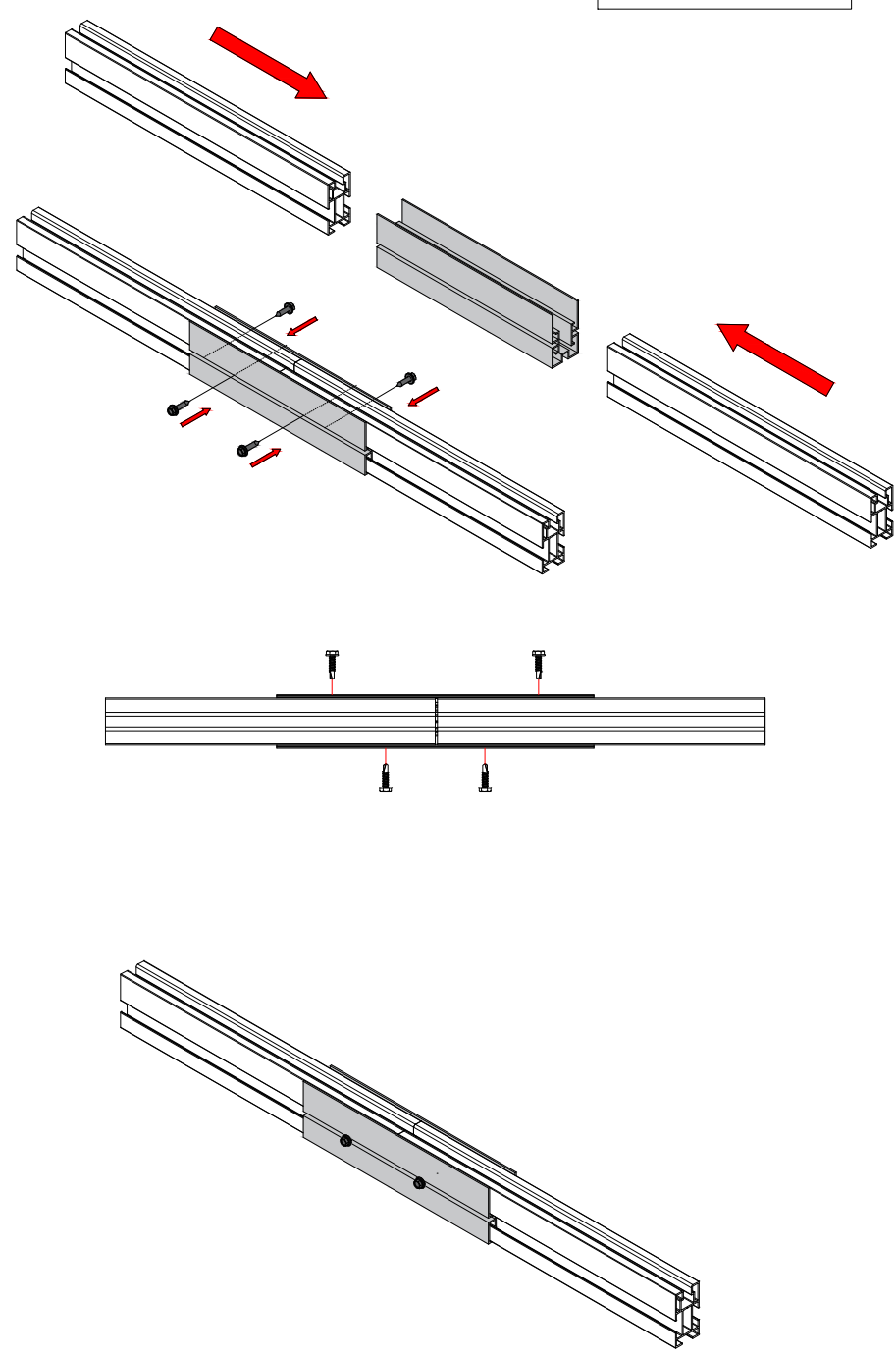
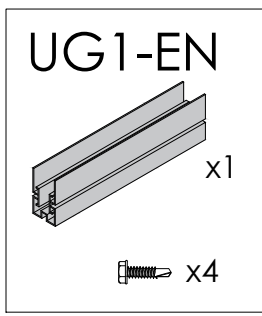
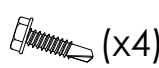




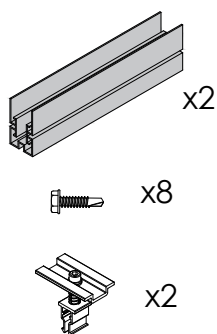
Sunfer reserves the right to make changes to the product and its associated documents at any time. The images in this document are for illustration only and may differ from the products provided.



6 Nm



S15-EN


**Joining Kit**

Optional Step: For joining one or more kits

Kit B

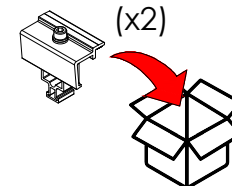
S15-EN

Kit A



Refer to UG1-EN installation

Extra (x2)



There are 2x extra S10-EN in each kit

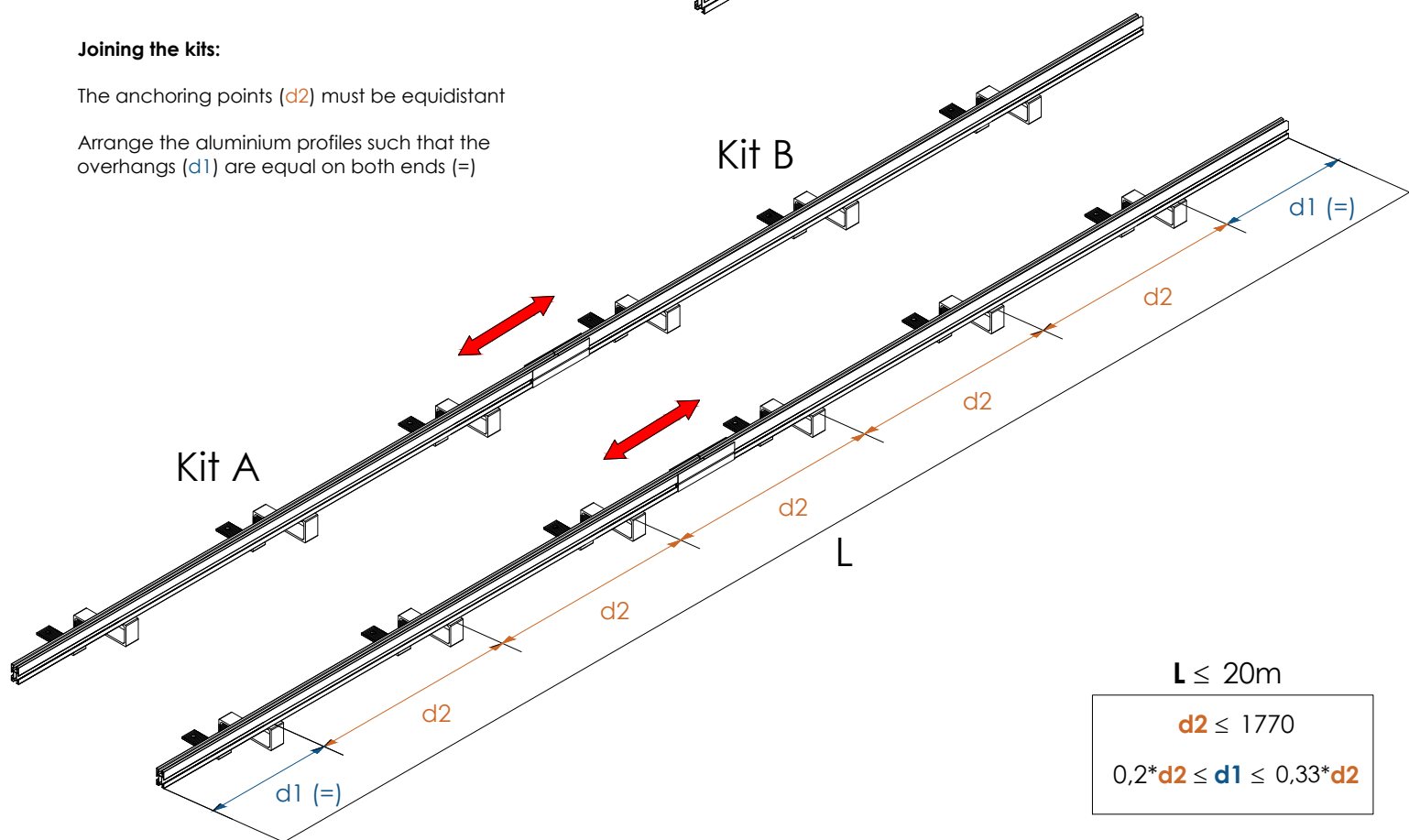
Joining the kits:

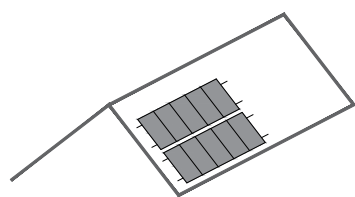
The anchoring points (d2) must be equidistant

Arrange the aluminium profiles such that the overhangs (d1) are equal on both ends (=)

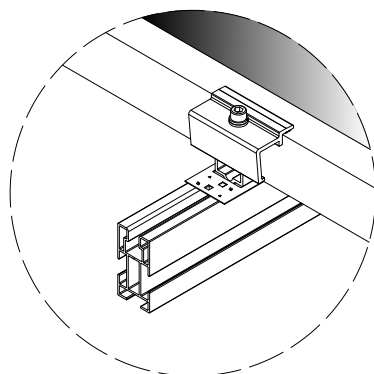
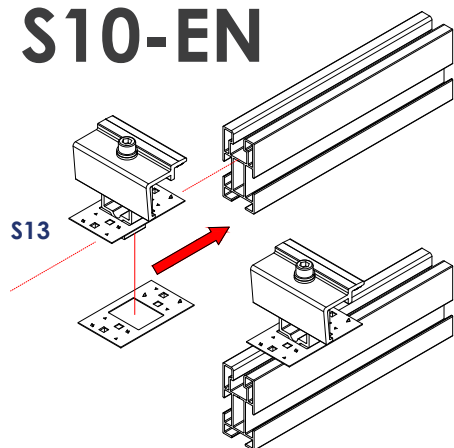
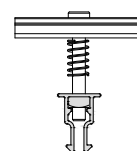
Kit B

Kit A

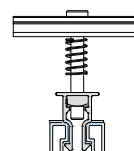
 $L \leq 20\text{m}$ $d2 \leq 1770$ $0,2 \cdot d2 \leq d1 \leq 0,33 \cdot d2$ 



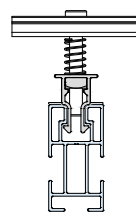
7 Nm

S10-EN

S13


1)



2)



3)

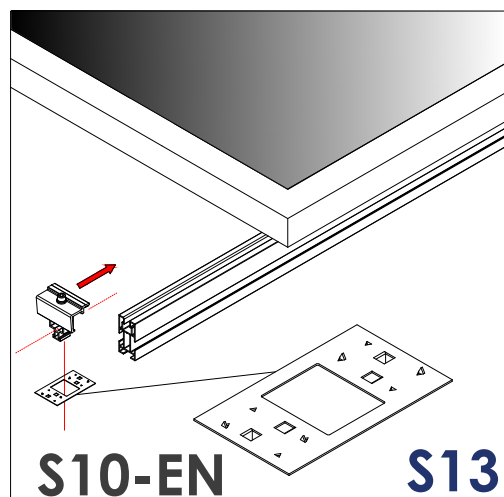
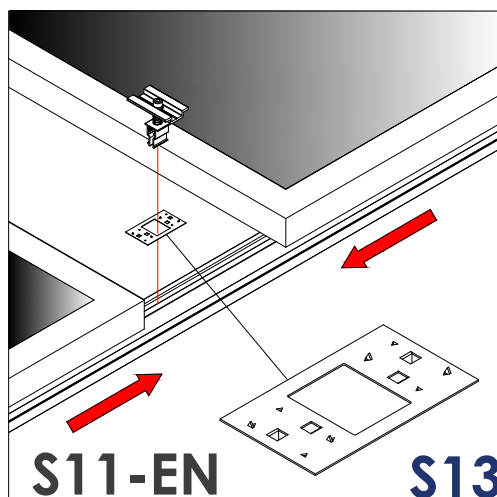
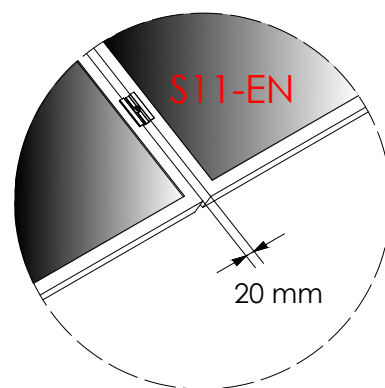
S11-EN

28-30 mm

35 mm

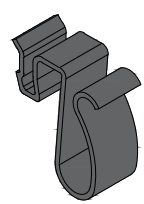
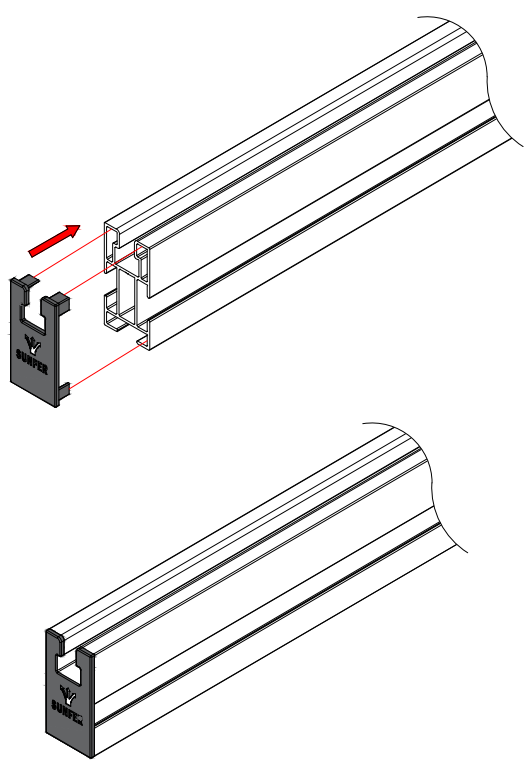
40 mm

! Double check the recommended torque with a torque wrench to ensure a good connection. The pins must be pinned to the rail.

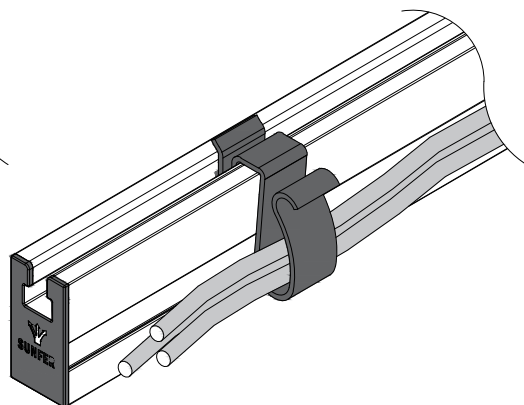
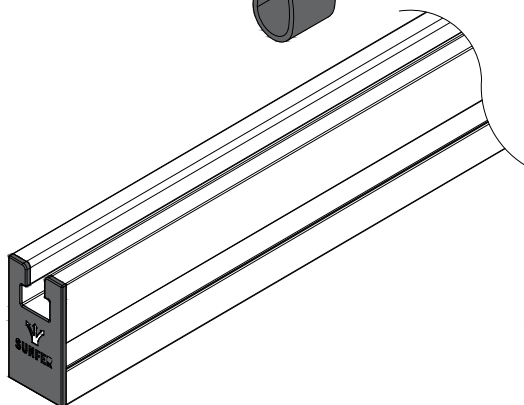

S10-EN
S13

S11-EN
S13

S11-EN

20 mm

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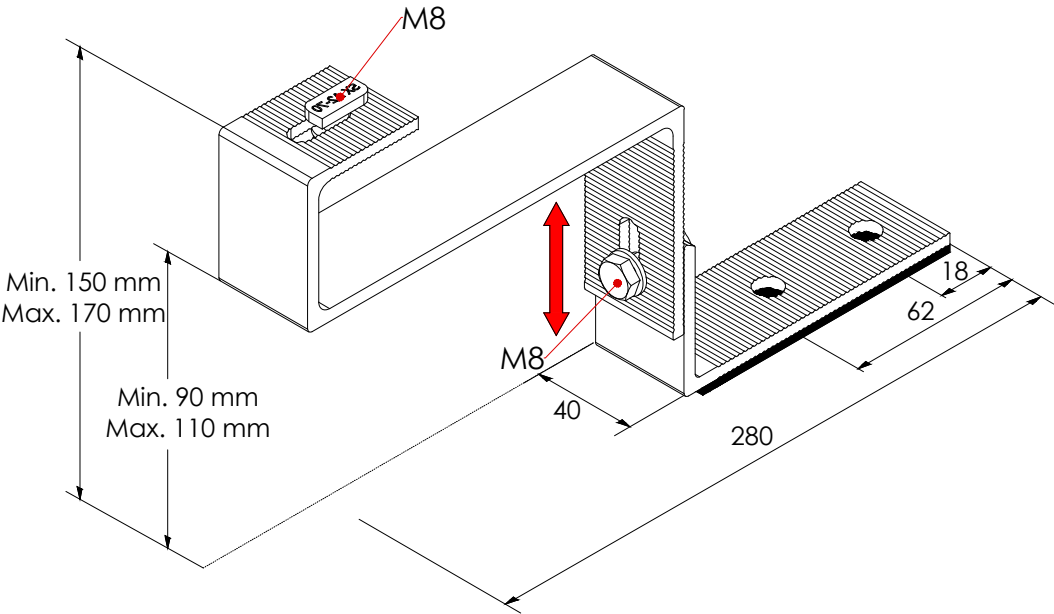
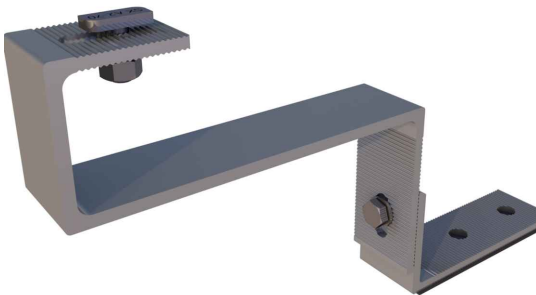


Optional Cable Clip
(Not included)



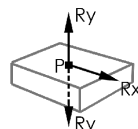
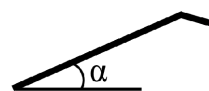
02.3V-EN
S02.3-EN

Technical
Information:
Anchor



Description	Coplanar Mount
Panel Orientation	Portrait/Landscape
Format	KIT of 1 to 4 panels
Joining Kit	S15-EN not included (optional)
Application Surface	Tile
Anchoring Surface	Concrete Slab
Type of fastening	Screwed (Not included)
Mount	S02.3-EN
Profile	G1-EN
Grounding Plate	S13
Maximum panel dimensions	2400x1150 mm
Panel thickness	from 28 to 40 mm
Materials	Fasteners: A2 AISI 304 Stainless Steel Profiles: EN AW 6005A T6 Aluminium, raw or anodized EPDM Weatherseal
Maximum Loads	According to Configuration
Structural calculation	Computational model checked against ESROCODE 9 "PROJECT ALUMINIUM STRUCTURES"

Maximum admissible loads and their reactions



5° Pitch

10° Pitch

15° Pitch

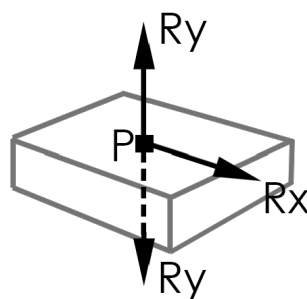
20° Pitch

25° Pitch

30° Pitch

35° Pitch

40° Pitch



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

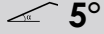







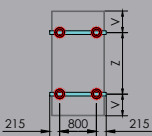

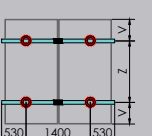

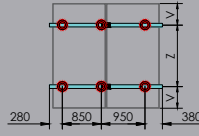



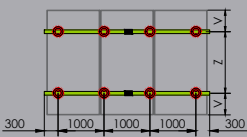



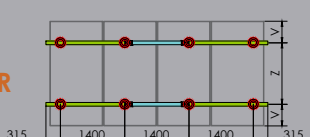

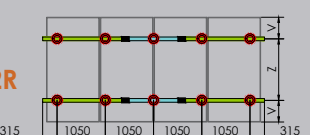
Maximum Admissible Loads and Reactions					 5°
	Loads		 (kN/Mount)	 (kN/Mount)	 (kN/Mount)
	 (Km/h)	 (Kg/m2)			
 	110	232	0.158	0.016	1.8429
	130	265	0.146	0.016	1.7166
	150	265	0.146	0.053	1.7340
	180	265	0.146	0.118	1.7648
	210	265	0.146	0.195	1.8012
	250	264	0.145	0.316	1.8466
 	110	107	0.155	0.032	1.8468
	130	131	0.152	0.032	1.8443
	150	128	0.149	0.105	1.8438
	180	123	0.144	0.236	1.8465
	210	117	0.138	0.390	1.8486
	250	107	0.127	0.633	1.8452
 	110	145	0.156	0.017	1.8437
	130	179	0.154	0.017	1.8463
	150	176	0.152	0.057	1.8459
	180	171	0.148	0.127	1.8479
	210	165	0.143	0.211	1.8495
	250	155	0.136	0.342	1.8470
 	110	87	0.154	0.025	1.8453
	130	106	0.150	0.025	1.8423
	150	103	0.147	0.084	1.8417
	180	98	0.140	0.187	1.8449
	210	92	0.133	0.309	1.8474
	250	82	0.121	0.502	1.8434
 	110	129	0.156	0.019	1.8458
	130	159	0.154	0.019	1.8487
	150	156	0.151	0.065	1.8482
	180	150	0.146	0.145	1.8405
	210	144	0.141	0.239	1.8423
	250	135	0.133	0.388	1.8495
 	110	64	0.151	0.038	1.8361
	130	78	0.148	0.038	1.8456
	150	75	0.143	0.127	1.8448
	180	70	0.135	0.285	1.8489
	210	63	0.124	0.471	1.8342
	250	54	0.110	0.764	1.8470
 	110	84	0.153	0.024	1.8365
	130	103	0.150	0.024	1.8441
	150	100	0.146	0.079	1.8435
	180	95	0.140	0.176	1.8468
	210	89	0.133	0.291	1.8494
	250	79	0.120	0.472	1.8453
 	110	119	0.155	0.020	1.8408
	130	147	0.153	0.020	1.8492
	150	144	0.151	0.068	1.8487
	180	138	0.145	0.151	1.8405
	210	132	0.139	0.250	1.8424
	250	122	0.130	0.406	1.8393

Table 1 - Maximum admissible loads and reactions.

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 (μ_1) 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/>




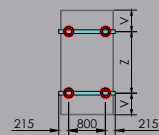






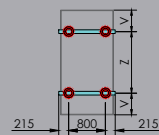

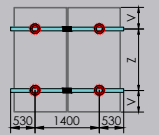

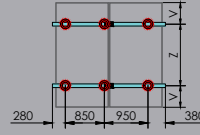

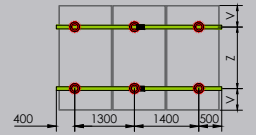

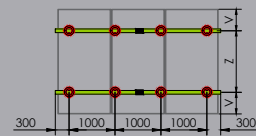

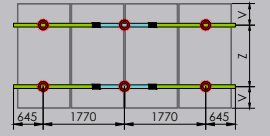



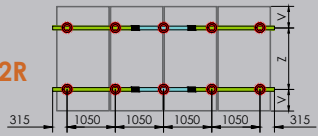
Maximum Admissible Loads and Reactions						10°
		Loads				
		 (Km/h)	 (Kg/m2)	(kN/Mount)	(kN/Mount)	(kN/Mount)
		110	238	0.319	0.015	1.8462
		130	265	0.287	0.017	1.6799
		150	265	0.287	0.054	1.6973
		180	265	0.287	0.119	1.7281
		210	265	0.287	0.196	1.7644
		250	265	0.287	0.318	1.8216
		110	109	0.311	0.029	1.8376
		130	134	0.306	0.034	1.8415
		150	131	0.300	0.108	1.8418
		180	126	0.290	0.238	1.8458
		210	120	0.278	0.392	1.8495
		250	110	0.258	0.635	1.8489
		110	149	0.316	0.016	1.8489
		130	183	0.311	0.018	1.8431
		150	180	0.306	0.058	1.8433
		180	175	0.298	0.129	1.8464
		210	169	0.289	0.212	1.8492
		250	159	0.273	0.343	1.8487
		110	89	0.309	0.023	1.8422
		130	109	0.304	0.027	1.8469
		150	106	0.296	0.085	1.8473
		180	100	0.282	0.189	1.8384
		210	94	0.267	0.311	1.8428
		250	84	0.243	0.504	1.8420
		110	132	0.314	0.018	1.8439
		130	163	0.310	0.021	1.8497
		150	160	0.305	0.066	1.8500
		180	154	0.295	0.146	1.8436
		210	148	0.285	0.241	1.8467
		250	138	0.267	0.389	1.8462
		110	66	0.305	0.036	1.8438
		130	80	0.297	0.041	1.8454
		150	77	0.288	0.130	1.8458
		180	71	0.270	0.288	1.8345
		210	65	0.251	0.474	1.8401
		250	55	0.221	0.767	1.8391
		110	86	0.307	0.022	1.8345
		130	106	0.304	0.025	1.8499
		150	102	0.294	0.080	1.8362
		180	97	0.281	0.178	1.8411
		210	91	0.267	0.293	1.8456
		250	81	0.242	0.474	1.8448
		110	122	0.313	0.019	1.8418
		130	150	0.308	0.022	1.8428
		150	147	0.303	0.069	1.8430
		180	142	0.293	0.153	1.8467
		210	135	0.280	0.252	1.8396
		250	126	0.264	0.407	1.8495

Table 2 - Maximum admissible loads and reactions.

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 (μ_1) 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/>










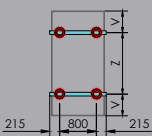

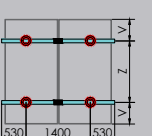

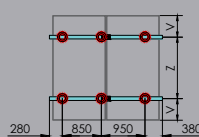



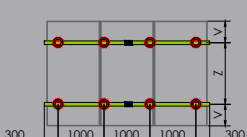



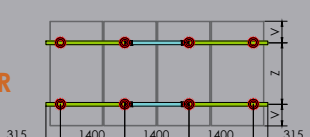

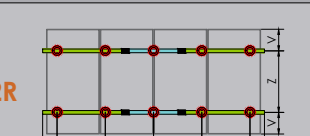
Maximum Admissible Loads and Reactions					15°
	Loads				
	 (Km/h)	 (Kg/m2)	(kN/Mount)	(kN/Mount)	(kN/Mount)
 	110	244	0.478	0.010	1.8481
	130	265	0.420	0.051	1.6581
	150	265	0.420	0.098	1.6882
	180	265	0.420	0.182	1.7413
	210	265	0.420	0.281	1.8041
	250	256	0.405	0.437	1.8476
 	110	110	0.459	0.020	1.8428
	130	133	0.446	0.101	1.8446
	150	128	0.431	0.196	1.8494
	180	118	0.401	0.364	1.8450
	210	107	0.369	0.562	1.8489
	250	89	0.315	0.874	1.8472
 	110	151	0.468	0.011	1.8468
	130	184	0.457	0.055	1.8460
	150	179	0.446	0.106	1.8496
	180	169	0.423	0.196	1.8463
	210	158	0.398	0.304	1.8493
	250	140	0.357	0.472	1.8480
 	110	89	0.453	0.016	1.8450
	130	106	0.435	0.080	1.8372
	150	101	0.417	0.155	1.8429
	180	91	0.382	0.289	1.8377
	210	80	0.343	0.446	1.8423
	250	62	0.170	0.693	1.8404
 	110	134	0.466	0.012	1.8495
	130	162	0.452	0.062	1.8415
	150	157	0.439	0.120	1.8456
	180	147	0.414	0.223	1.8419
	210	136	0.387	0.345	1.8452
	250	118	0.341	0.536	1.8438
 	110	65	0.442	0.024	1.8454
	130	76	0.418	0.122	1.8355
	150	71	0.396	0.237	1.8427
	180	61	0.351	0.439	1.8361
	210	50	0.190	0.679	1.8420
	250	32	0.149	1.055	1.8395
 	110	86	0.450	0.015	1.8394
	130	103	0.434	0.075	1.8415
	150	98	0.416	0.146	1.8474
	180	88	0.380	0.271	1.8420
	210	77	0.340	0.419	1.8468
	250	59	0.169	0.652	1.8448
 	110	123	0.461	0.013	1.8401
	130	150	0.451	0.065	1.8492
	150	144	0.435	0.126	1.8435
	180	135	0.411	0.233	1.8496
	210	123	0.378	0.360	1.8431
	250	105	0.330	0.560	1.8416

Table 3 - Maximum admissible loads and reactions.

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 (μ_1) 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/>










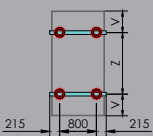

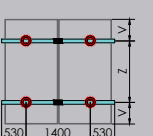

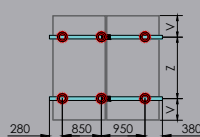



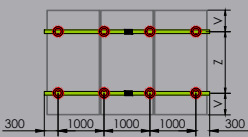

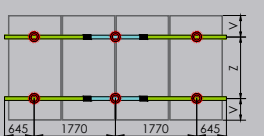

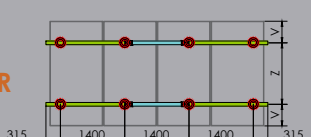

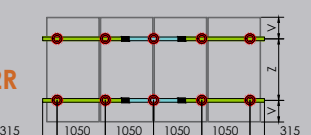

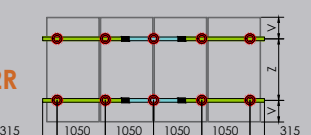
Maximum Admissible Loads and Reactions					20°
	Loads				
	 (Km/h)	 (Kg/m ²)			
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	258	0.649	0.012	1.8468
	130	265	0.541	0.053	1.5767
	150	265	0.541	0.101	1.6067
	180	265	0.541	0.184	1.6599
	210	265	0.541	0.284	1.7227
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	117	0.625	0.025	1.8477
	130	141	0.605	0.106	1.8443
	150	135	0.582	0.201	1.8416
	180	125	0.544	0.369	1.8431
	210	113	0.499	0.567	1.8431
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	160	0.636	0.013	1.8473
	130	195	0.622	0.057	1.8467
	150	189	0.604	0.109	1.8446
	180	179	0.575	0.199	1.8458
	210	167	0.540	0.306	1.8457
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	94	0.613	0.020	1.8382
	130	113	0.592	0.084	1.8435
	150	107	0.565	0.159	1.8402
	180	97	0.520	0.293	1.8421
	210	85	0.466	0.450	1.8420
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	142	0.633	0.015	1.8496
	130	172	0.615	0.065	1.8445
	150	166	0.596	0.123	1.8422
	180	156	0.563	0.226	1.8435
	210	144	0.524	0.348	1.8434
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	69	0.600	0.030	1.8439
	130	81	0.569	0.128	1.8387
	150	75	0.535	0.243	1.8346
	180	65	0.477	0.445	1.8369
	210	53	0.255	0.685	1.8368
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	91	0.610	0.019	1.8352
	130	109	0.588	0.079	1.8373
	150	104	0.565	0.150	1.8468
	180	94	0.519	0.275	1.8487
	210	82	0.463	0.423	1.8486
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	131	0.630	0.016	1.8477
	130	159	0.613	0.068	1.8493
	150	153	0.592	0.129	1.8469
	180	143	0.558	0.236	1.8483
	210	131	0.516	0.364	1.8482
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	250	112	0.450	0.563	1.8469

Table 4 - Maximum admissible loads and reactions.

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/>











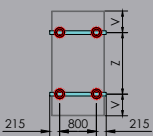

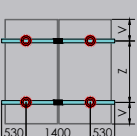

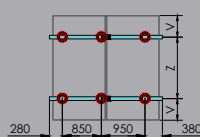

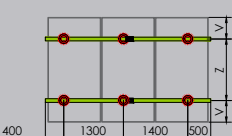

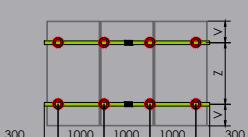



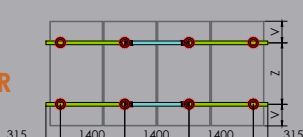

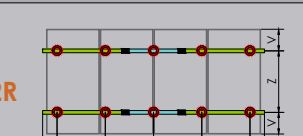
Maximum Admissible Loads and Reactions					 25°
	Loads				
	 (Km/h)	 (Kg/m2)	(kN/Mount)	(kN/Mount)	(kN/Mount)
 	110	228	0.689	0.016	1.5429
	130	265	0.646	0.056	1.4762
	150	148	0.688	0.104	1.5062
	180	148	0.688	0.188	0.9895
	210	148	0.688	0.287	1.0523
	250	148	0.688	0.443	1.1510
 	110	106	0.686	0.031	1.6003
	130	133	0.688	0.113	1.6567
	150	148	0.688	0.207	1.7168
	180	148	0.688	0.375	1.8231
	210	148	0.688	0.574	1.8415
	250	148	0.688	0.886	1.8442
 	110	143	0.686	0.017	1.5716
	130	179	0.687	0.061	1.6129
	150	148	0.688	0.112	1.4351
	180	148	0.688	0.203	1.5165
	210	148	0.688	0.310	1.6128
	250	148	0.688	0.478	1.7641
 	110	87	0.687	0.025	1.6270
	130	109	0.688	0.089	1.6911
	150	148	0.688	0.165	1.7626
	180	148	0.688	0.298	1.8426
	210	148	0.688	0.455	1.8413
	250	148	0.688	0.702	1.8446
 	110	128	0.689	0.019	1.5887
	130	160	0.689	0.069	1.6325
	150	148	0.688	0.127	1.5925
	180	148	0.688	0.230	1.6829
	210	148	0.688	0.352	1.7897
	250	148	0.688	0.543	1.8417
 	110	65	0.685	0.038	1.6649
	130	82	0.690	0.136	1.7539
	150	148	0.688	0.251	1.8448
	180	148	0.688	0.453	1.8434
	210	148	0.688	0.693	1.8419
	250	148	0.688	1.069	1.8460
 	110	85	0.690	0.023	1.6369
	130	106	0.688	0.084	1.6967
	150	148	0.688	0.155	1.7699
	180	148	0.688	0.280	1.8400
	210	148	0.688	0.428	1.8387
	250	148	0.688	0.661	1.8420
 	110	118	0.686	0.020	1.5888
	130	148	0.688	0.072	1.6401
	150	148	0.688	0.133	1.6948
	180	148	0.688	0.241	1.7915
	210	148	0.688	0.368	1.8437
	250	148	0.688	0.568	1.8462

Table 5 - Maximum admissible loads and reactions.

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 (μ_1) 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/>



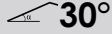







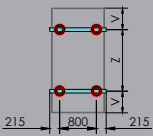

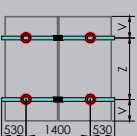

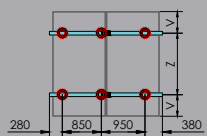

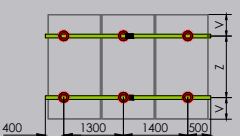

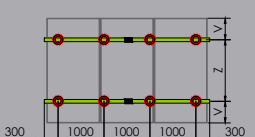

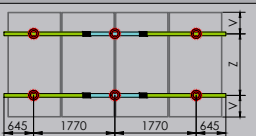

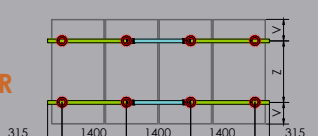

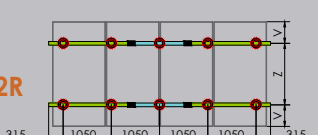
Maximum Admissible Loads and Reactions					
	Loads				
	 (Km/h)	 (Kg/m ²)			
 	110	199	0.688	0.026	1.2947
	130	249	0.689	0.004	1.3365
	150	128	0.688	0.023	1.3839
	180	128	0.688	0.069	0.9341
	210	128	0.688	0.125	1.0333
	250	128	0.688	0.211	1.1893
 	110	92	0.690	0.052	1.3996
	130	115	0.690	0.007	1.4810
	150	128	0.688	0.046	1.5759
	180	128	0.688	0.139	1.7438
	210	128	0.688	0.249	1.8442
	250	128	0.688	0.422	1.8448
 	110	124	0.686	0.028	1.3452
	130	156	0.690	0.004	1.4144
	150	128	0.688	0.025	1.3031
	180	128	0.688	0.075	1.4317
	210	128	0.688	0.135	1.5837
	250	128	0.688	0.228	1.8227
 	110	75	0.690	0.041	1.4389
	130	93	0.685	0.006	1.5276
	150	128	0.688	0.036	1.6405
	180	128	0.688	0.110	1.8399
	210	128	0.688	0.198	1.8430
	250	128	0.688	0.335	1.8437
 	110	110	0.685	0.032	1.3605
	130	138	0.687	0.004	1.4334
	150	128	0.688	0.028	1.4461
	180	128	0.688	0.085	1.5888
	210	128	0.688	0.153	1.7575
	250	128	0.688	0.259	1.8487
 	110	55	0.684	0.063	1.4944
	130	69	0.686	0.008	1.6208
	150	128	0.688	0.055	1.7643
	180	128	0.688	0.168	1.8432
	210	128	0.688	0.301	1.8472
	250	128	0.688	0.301	1.8472
 	110	72	0.683	0.039	1.4333
	130	91	0.690	0.005	1.5432
	150	128	0.688	0.034	1.6587
	180	128	0.688	0.104	1.8414
	210	128	0.688	0.186	1.8446
	250	128	0.688	0.315	1.8453
 	110	102	0.686	0.033	1.3745
	130	128	0.688	0.005	1.4526
	150	128	0.688	0.029	1.5389
	180	128	0.688	0.089	1.6916
	210	128	0.688	0.160	1.8477
	250	128	0.688	0.271	1.8483

Table 6 - Maximum admissible loads and reactions.

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 (μ_1) 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/>



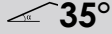







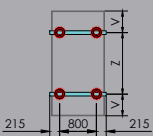

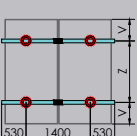

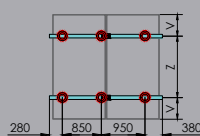

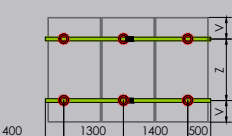

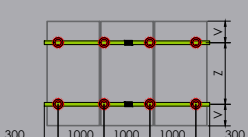

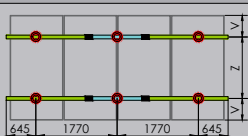

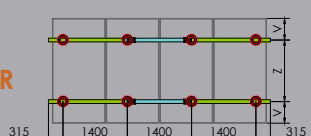

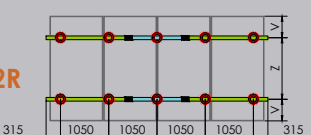
Maximum Admissible Loads and Reactions					
	Loads				
	 (Km/h)	 (Kg/m ²)			
 	110	218	0.690	0.022	1.0873
	130	265	0.674	0.001	1.1064
	150	138	0.686	0.027	1.1539
	180	138	0.686	0.074	0.8167
	210	138	0.686	0.129	0.9158
	250	138	0.686	0.216	1.0718
 	110	99	0.688	0.043	1.1881
	130	124	0.689	0.002	1.2711
	150	138	0.686	0.055	1.3661
	180	138	0.686	0.148	1.5339
	210	138	0.686	0.258	1.8317
	250	138	0.686	0.431	1.8452
 	110	135	0.688	0.023	1.1392
	130	169	0.688	0.001	1.2028
	150	138	0.686	0.030	1.1231
	180	138	0.686	0.080	1.2517
	210	138	0.686	0.139	1.4036
	250	138	0.686	0.233	1.6427
 	110	80	0.687	0.034	1.2249
	130	100	0.687	0.002	1.3216
	150	138	0.686	0.043	1.4344
	180	138	0.686	0.117	1.7127
	210	138	0.686	0.205	1.8460
	250	138	0.686	0.342	1.8462
 	110	120	0.689	0.027	1.1584
	130	150	0.689	0.001	1.2276
	150	138	0.686	0.034	1.2463
	180	138	0.686	0.091	1.3890
	210	138	0.686	0.158	1.5577
	250	138	0.686	0.264	1.8229
 	110	59	0.690	0.052	1.2952
	130	73	0.684	0.002	1.4107
	150	138	0.686	0.066	1.5843
	180	138	0.686	0.179	1.8481
	210	138	0.686	0.312	1.8472
	250	138	0.686	0.322	1.8427
 	110	78	0.690	0.032	1.2345
	130	97	0.687	0.001	1.3296
	150	138	0.686	0.041	1.4451
	180	138	0.686	0.110	1.7544
	210	138	0.686	0.193	1.8425
	250	138	0.686	0.322	1.8427
 	110	111	0.690	0.028	1.1714
	130	138	0.686	0.001	1.2409
	150	138	0.686	0.035	1.3273
	180	138	0.686	0.095	1.4799
	210	138	0.686	0.165	1.6664
	250	138	0.686	0.276	1.8476

Table 7 - Maximum admissible loads and reactions.

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 (μ_1) 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/>





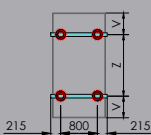






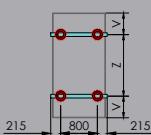

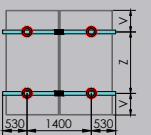

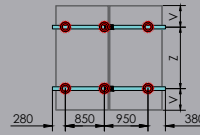

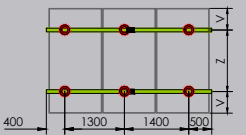

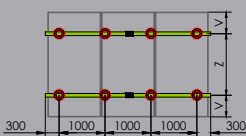

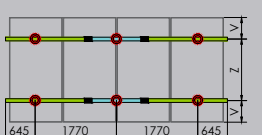



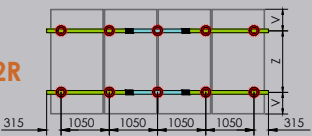
Maximum Admissible Loads and Reactions						 40°
		Loads		 (kN/Mount)	 (kN/Mount)	 (kN/Mount)
		 (Km/h)	 (Kg/m2)			
		110	257	0.689	0.017	0.9169
		130	265	0.581	0.006	0.8267
		150	162	0.690	0.032	0.8710
		180	162	0.690	0.079	0.7103
		210	162	0.690	0.134	0.8029
		250	162	0.690	0.221	0.9485
		110	115	0.687	0.033	1.0102
		130	144	0.688	0.012	1.0873
		150	162	0.690	0.065	1.1759
		180	162	0.690	0.158	1.3465
		210	162	0.690	0.268	1.6058
		250	162	0.690	0.442	1.8459
		110	158	0.687	0.018	0.9653
		130	198	0.688	0.007	1.0252
		150	162	0.690	0.035	0.9687
		180	162	0.690	0.085	1.0887
		210	162	0.690	0.145	1.2305
		250	162	0.690	0.238	1.4536
		110	93	0.689	0.026	1.0490
		130	116	0.688	0.010	1.1379
		150	162	0.690	0.051	1.2432
		180	162	0.690	0.125	1.6003
		210	162	0.690	0.213	1.8479
		250	162	0.690	0.350	1.8464
		110	140	0.688	0.020	0.9824
		130	175	0.688	0.007	1.0470
		150	162	0.690	0.040	1.0750
		180	162	0.690	0.097	1.2082
		210	162	0.690	0.164	1.3656
		250	162	0.690	0.271	1.6131
		110	67	0.686	0.040	1.1066
		130	84	0.687	0.015	1.2232
		150	162	0.690	0.078	1.4835
		180	162	0.690	0.191	1.8466
		210	162	0.690	0.324	1.8459
		250	162	0.690	0.533	1.8440
		110	90	0.688	0.025	1.0534
		130	112	0.686	0.009	1.1430
		150	162	0.690	0.048	1.2509
		180	162	0.690	0.118	1.6393
		210	162	0.690	0.200	1.8477
		250	162	0.690	0.329	1.8462
		110	129	0.687	0.021	0.9929
		130	162	0.690	0.008	1.0652
		150	162	0.690	0.042	1.1458
		180	162	0.690	0.101	1.2883
		210	162	0.690	0.172	1.4609
		250	162	0.690	0.283	1.7257

Table 8 - Maximum admissible loads and reactions.

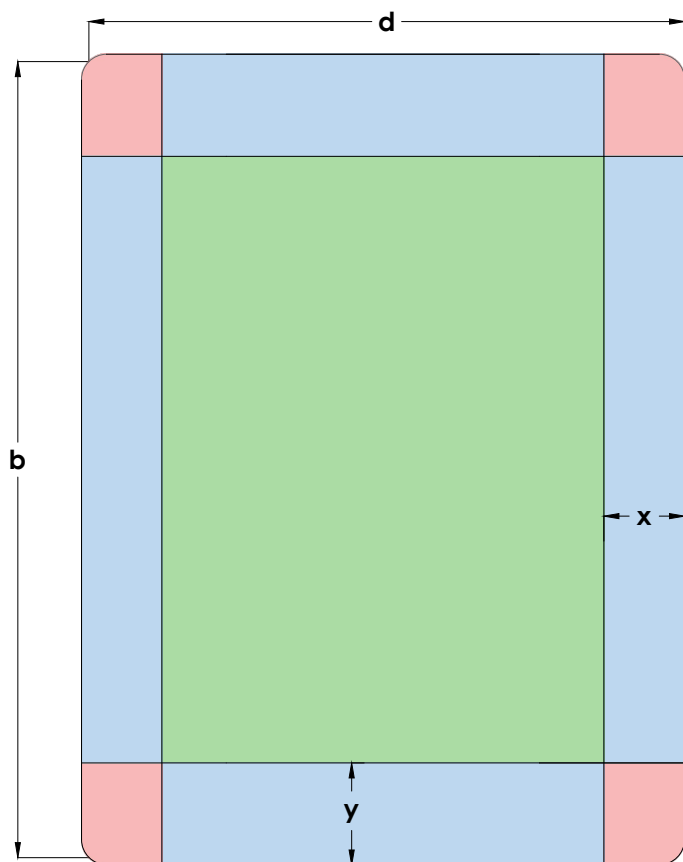
Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3.

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/>

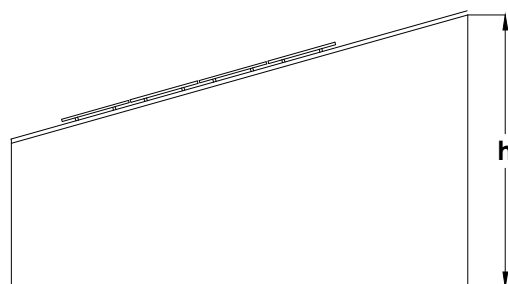







$$e = \min [b, 2h]$$

$$x = \text{Max} [e/10, 0.5\text{m}]$$

$$y = \text{Max} [e/4, 0.5\text{m}]$$



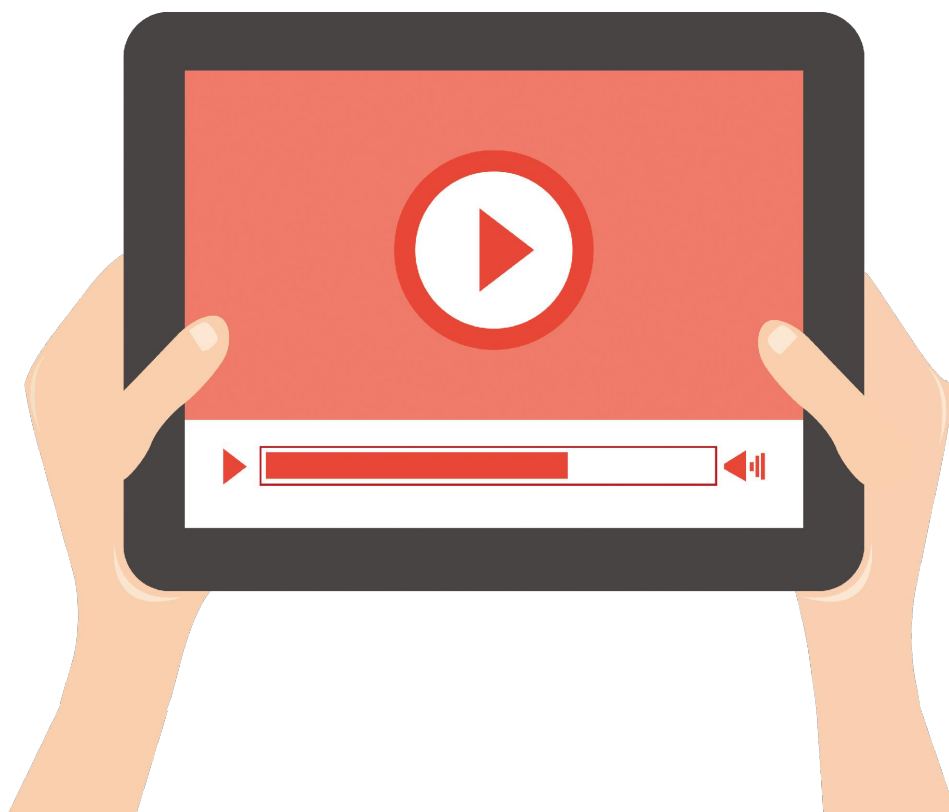
-  Installation Safe Zone
-  Turbulent Zone
-  Extremely Turbulent Zone

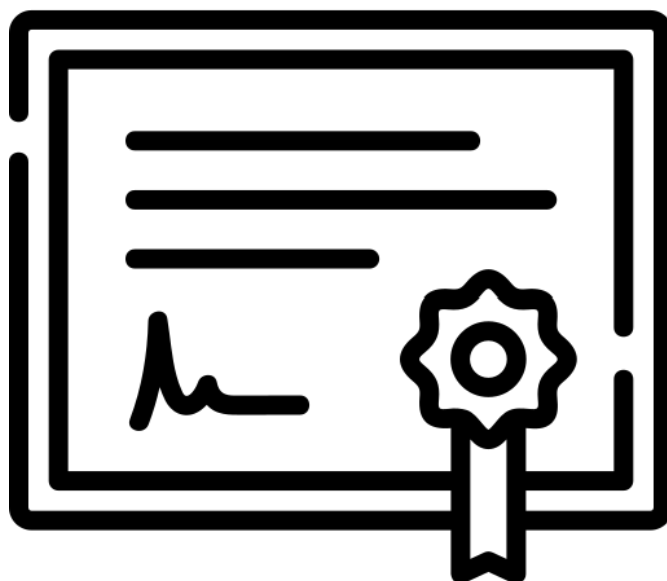
To avoid turbulence and other unwanted natural effects, it is strongly recommended to install photovoltaic panels inside of the green zone.



02.3V-EN

Installation Video





- **ISO 9001 Certificate**
- **ISO 14001 Certificate**
- **UNE-EN 1090 Certificate**
- **CE Marking**
- **Guarantee**



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:

02.3V-EN

TOLERANCES IN GEOMETRIC INFORMATION:

EN 1090-3

WELDABILITY:

--

FRACTURE RESISTANCE:

--

FIRE REACTION:

Classified material A1

CADMIUM EMISSION:

N/A

RADIOACTIVITY 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*

 SUNFER	DECLARATION OF PERFORMANCE	DdP
		REVISION 01

DECLARATION OF PERFORMANCE NUMBER:	P-0119
------------------------------------	--------

1. PRODUCT DESCRIPTION.

UNIQUE IDENTIFICATION CODE OF THE PRODUCT TYPE:	02.3V-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 <input type="checkbox"/>	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 <ul style="list-style-type: none"> - Carrying capacity - Fatigue resistance: - Fire resistance: - 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 (EU) No. 305/2011 under the responsibility of the manufacturer identified above.

Manufacturer's Name: Voro Gómez Nacher

Date of issue: 02/08/2023

Signature:

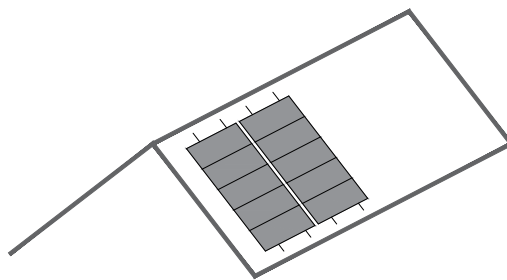




02.3V-EN



Landscape



Concrete Slab



CONTENTS

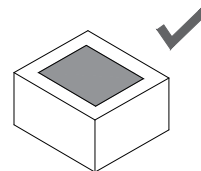
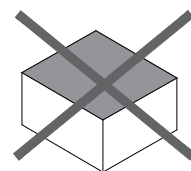
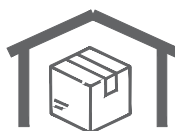
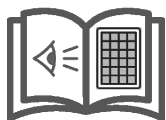
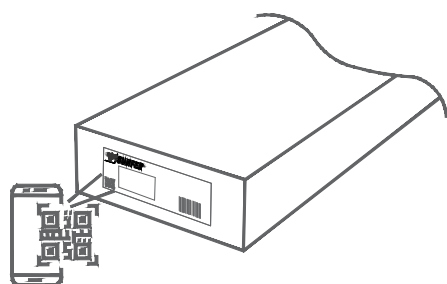
1. General Information
2. Kit Contents
3. Landscape Installation
4. Fastening Technical Information
5. Maximum Loads and Reactions
6. Installation Zone
7. Installation Video
8. Certificates and Guarantee

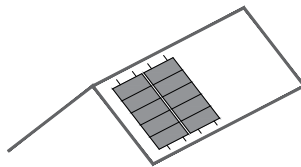




General Information and Recommendations EN

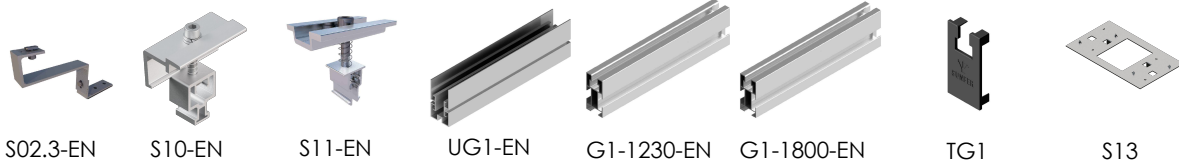
- All installation instructions and product specifications provided must be adhered to.
- Check the condition of the roof covering and its carrying capacity. The management overseeing installation is responsible for verifying that the substructure of the roof as well as the static structure of the building 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 original 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.





02.3V-EN

Kit Contents



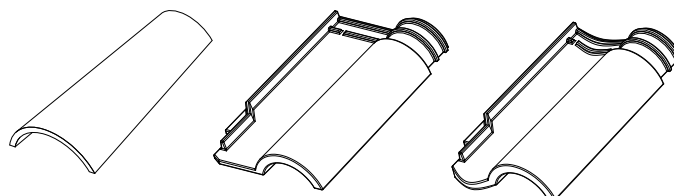
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	6	4	2	2	4	-	4	6
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	8	4	4	2	-	4	4	8
	6	4	6	4	2	4	4	10
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	10	4	6	4	2	4	4	10



Anchoring Surface:



Concrete Slab



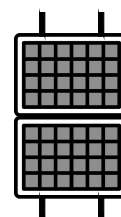
Profiles of **EN AW 6005A T6 Aluminium**



Fasteners of **A2-70 Stainless Steel**



Max.
2400x1150 mm
Thickness:
28-40 mm



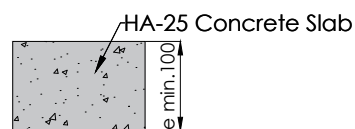
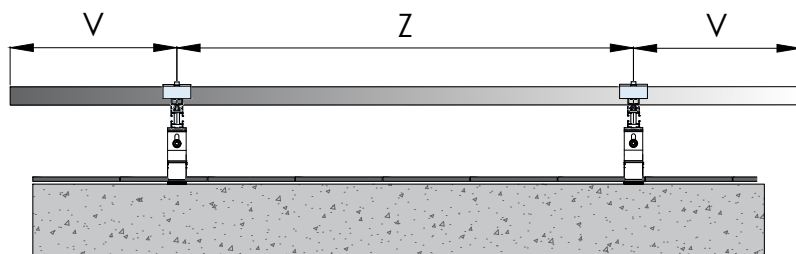
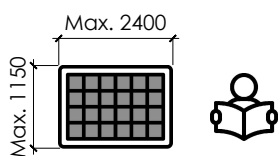
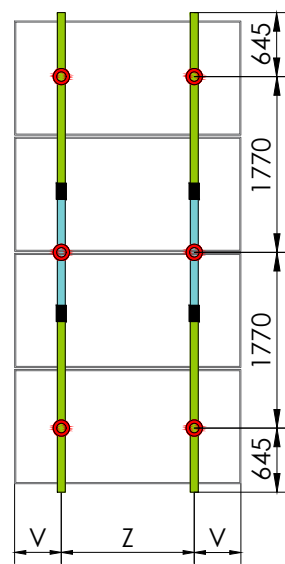
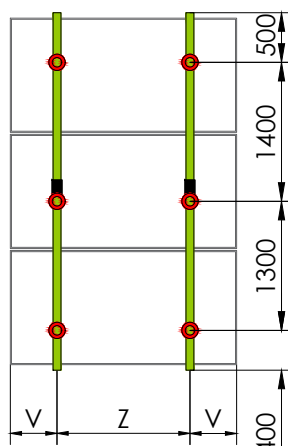
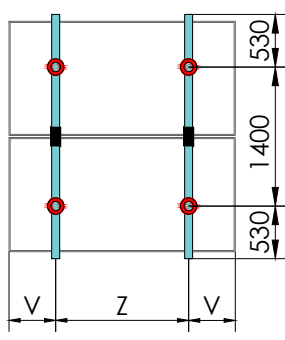
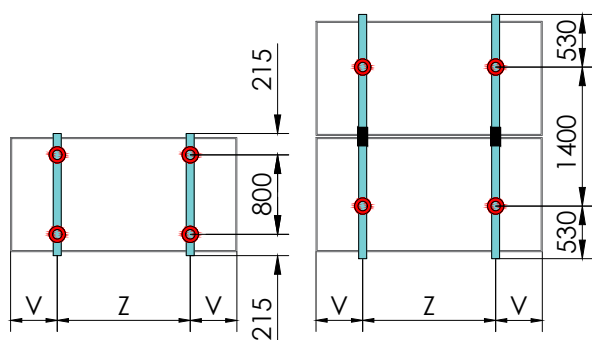
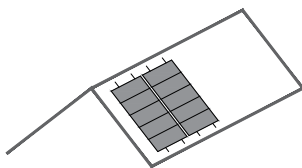
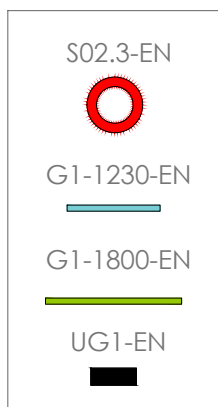


SUNFER

Landscape

02.3V-EN


Anchoring Distances




The maximum distance "Z" between profiles and the overhang distance "V" should be determined by consulting the technical datasheets of the solar panel manufacturer.

Sunfer reserves the right to make changes to the product and its associated documents at any time. The images in this document are for illustration only and may differ from the products provided.


S02.3-EN




G1-1230-EN

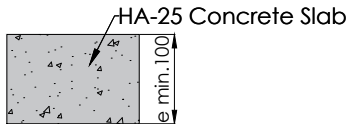
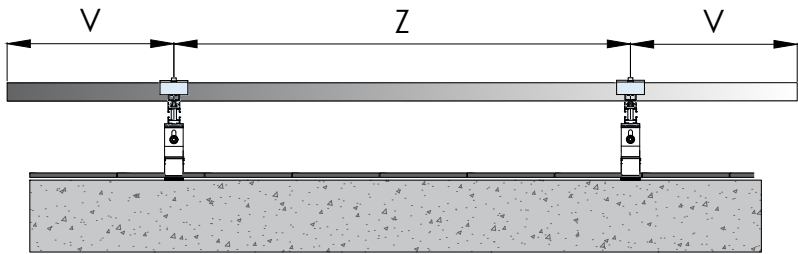
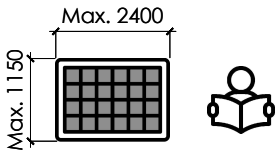
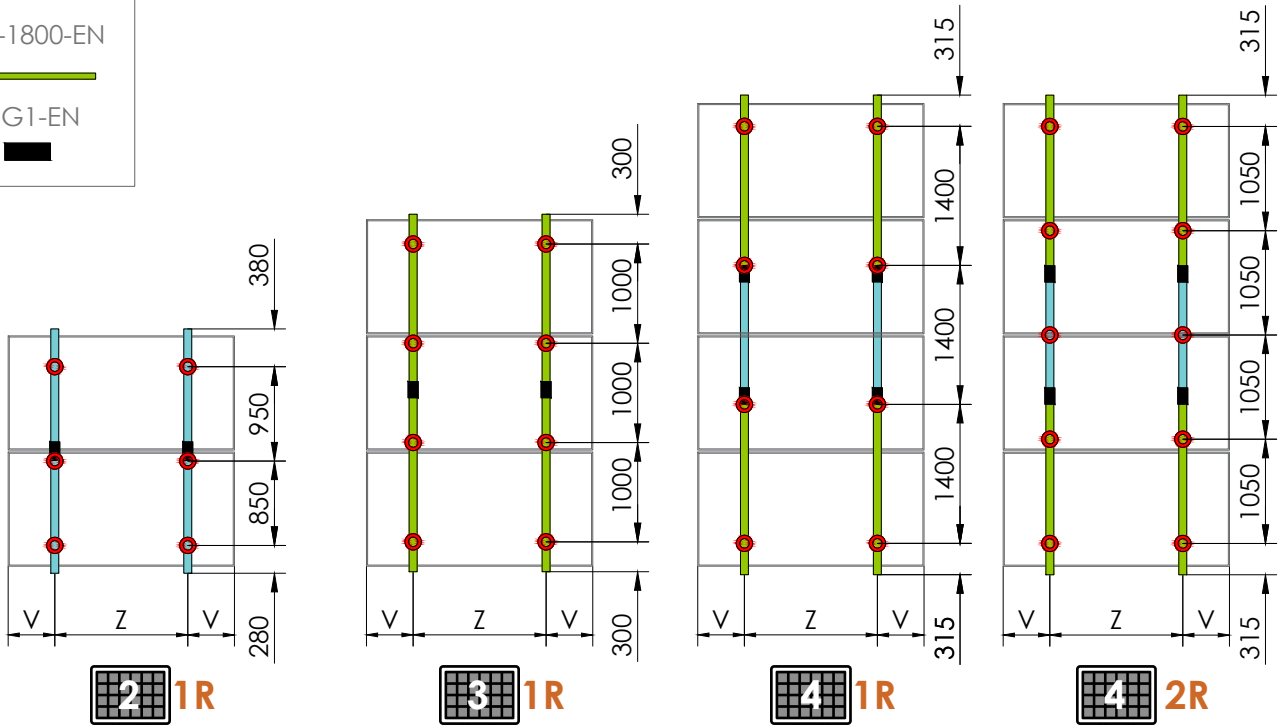
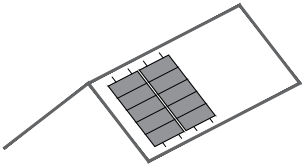


G1-1800-EN

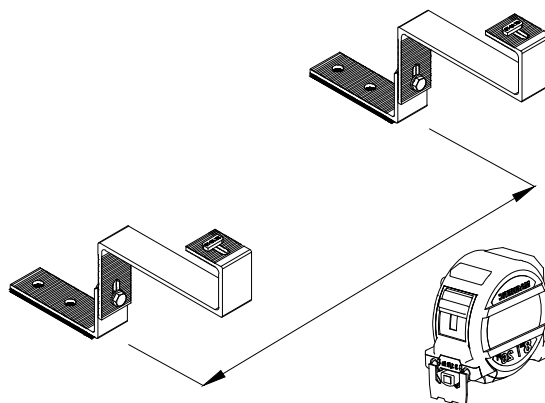
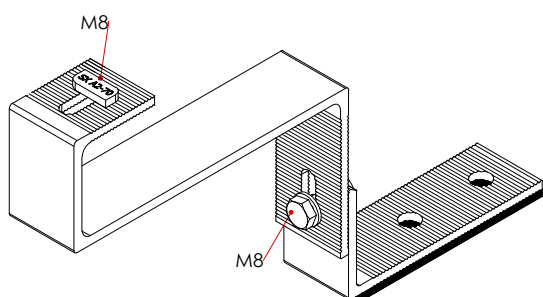
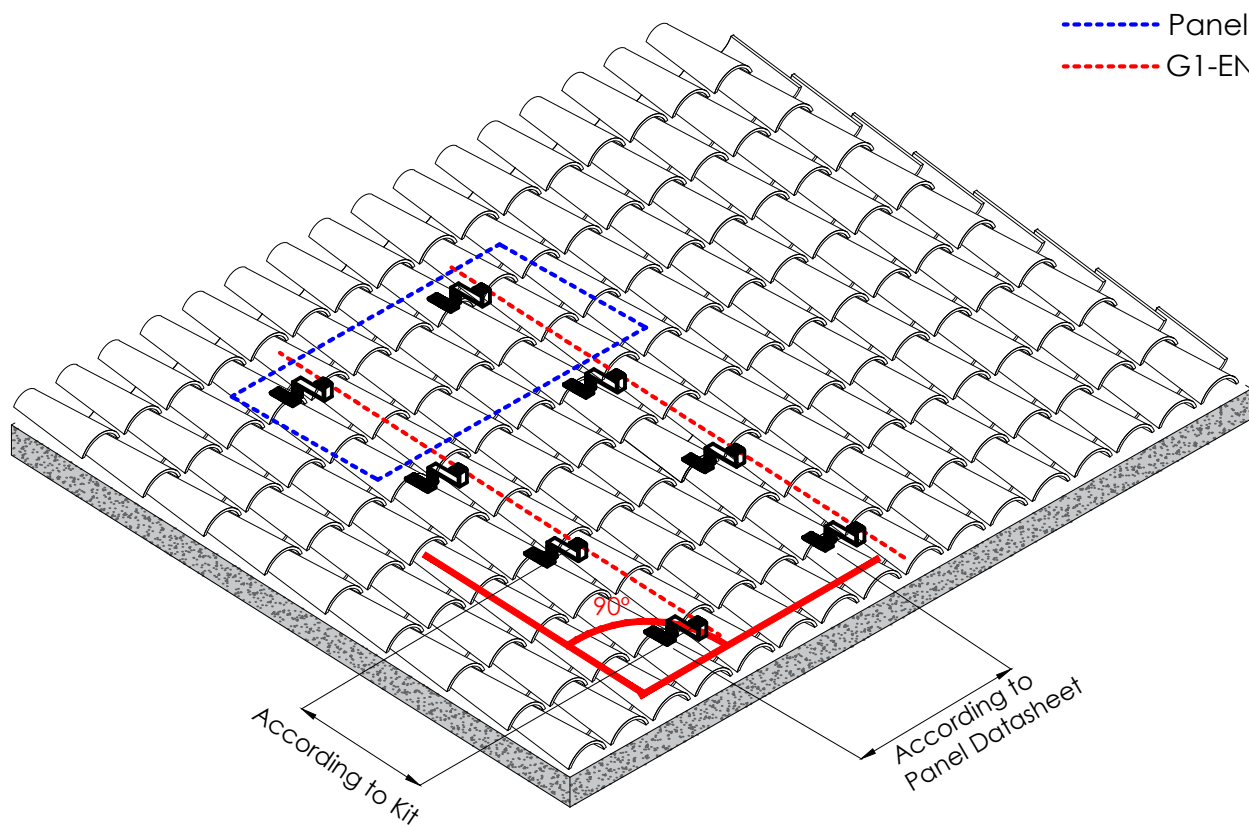
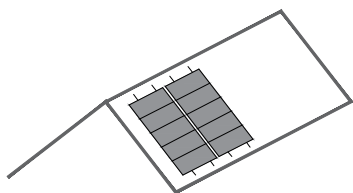


UG1-EN

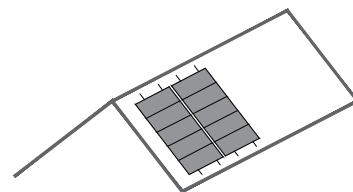
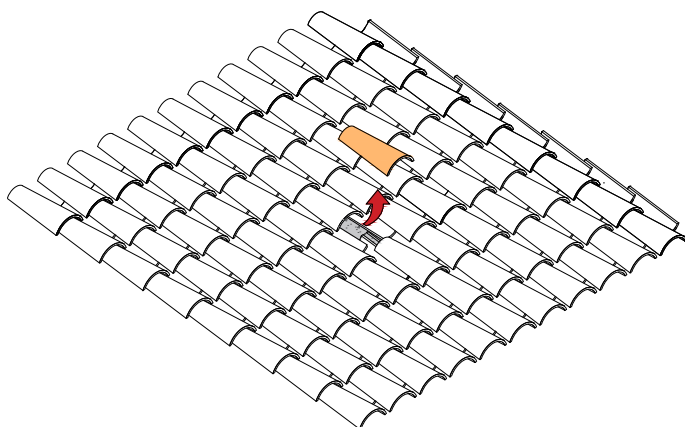




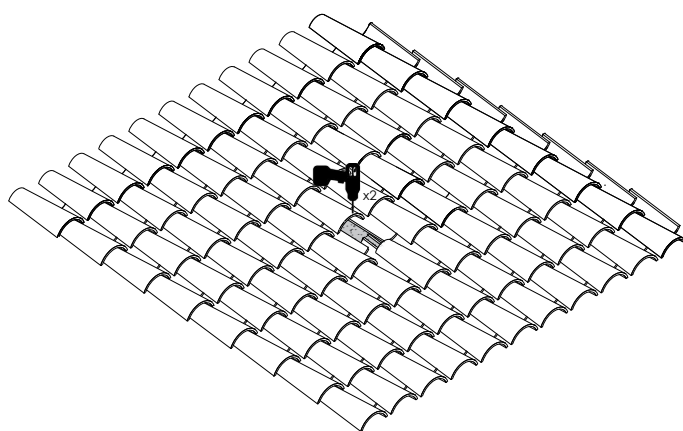
The maximum distance "Z" between profiles and the overhang distance "V" should be determined by consulting the technical datasheets of the solar panel manufacturer.



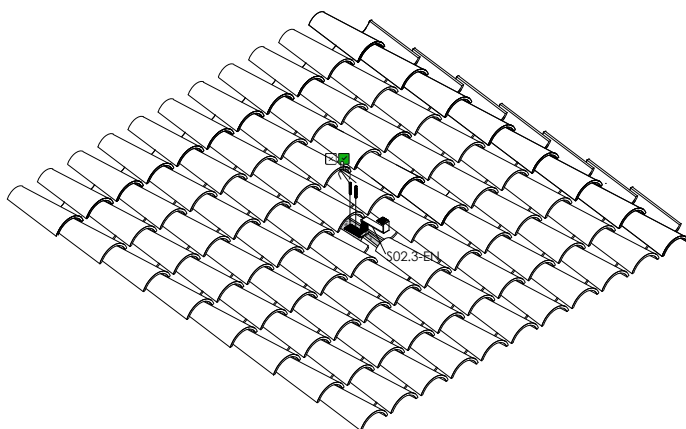
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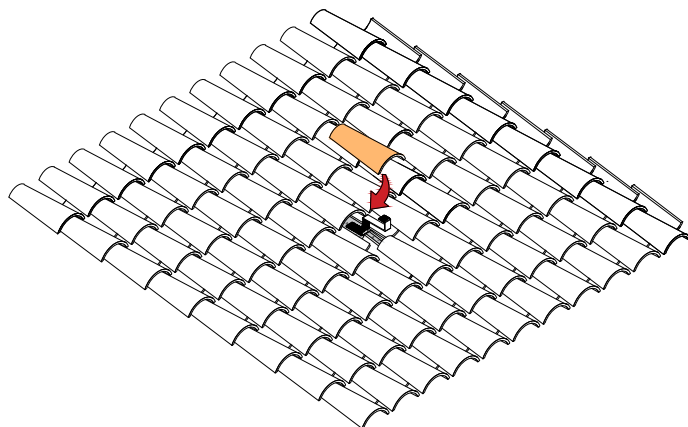
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3.

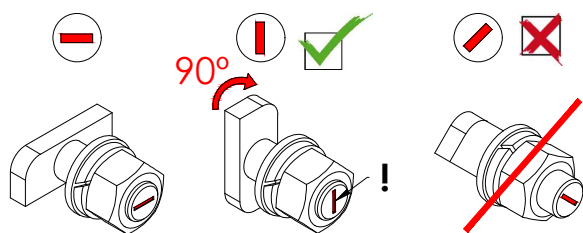


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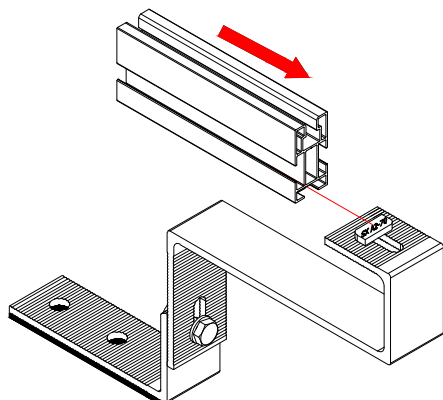
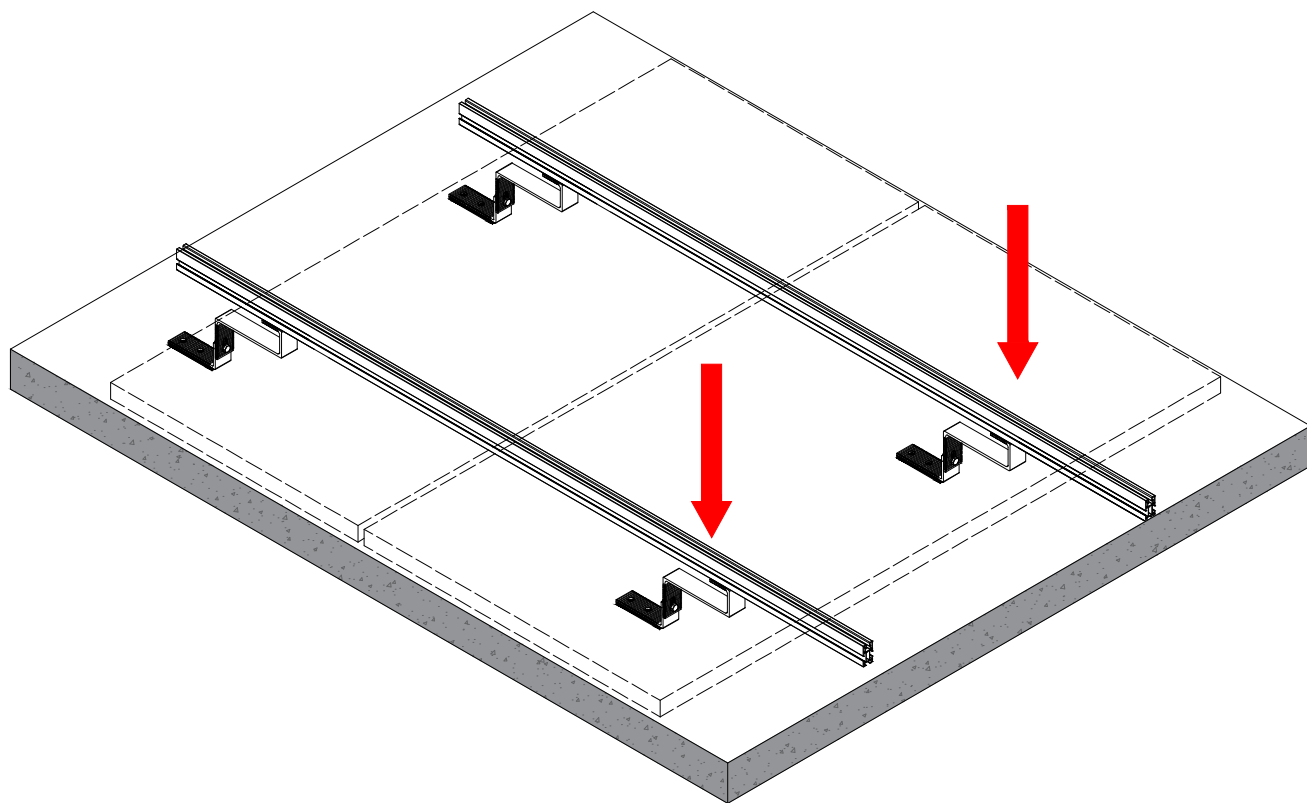
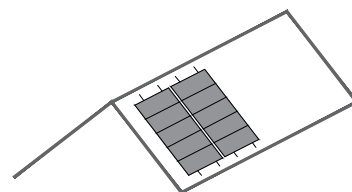


*Must support the reaction forces at the anchor point



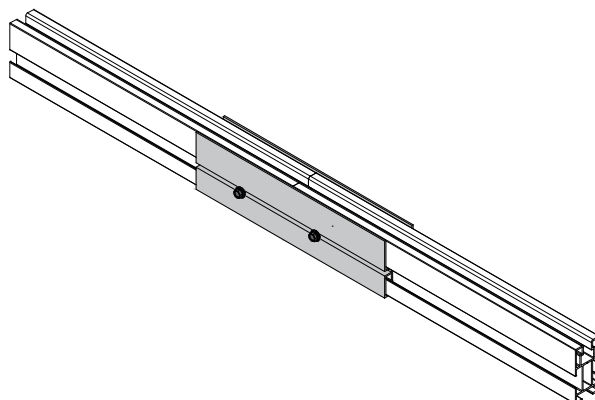
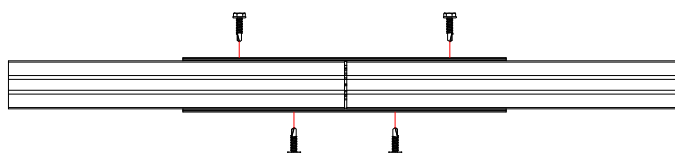
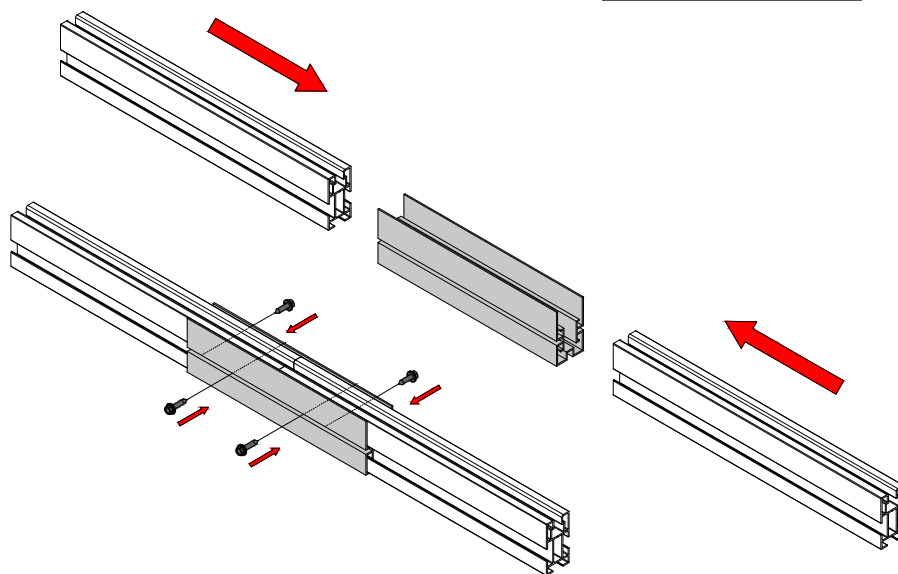
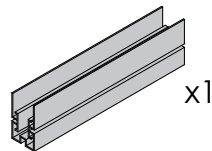


20 Nm

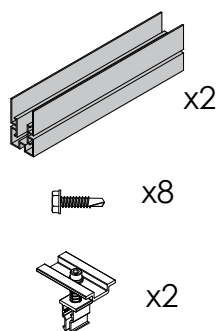




6 Nm


UG1-EN


S15-EN



Joining Kit

Optional Step: For joining one or more kits

Kit B

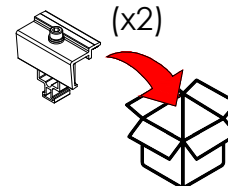
S15-EN

Kit A



Refer to UG1-EN installation

Extra (x2)



There are 2x extra S10-EN in each kit

Joining the kits:

The anchoring points (d2) must be equidistant

Arrange the aluminium profiles such that the overhangs (d1) are equal on both ends (=)

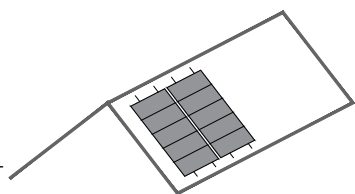
Kit A

Kit B

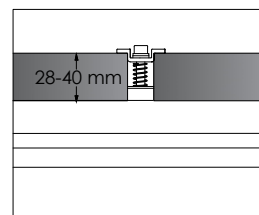
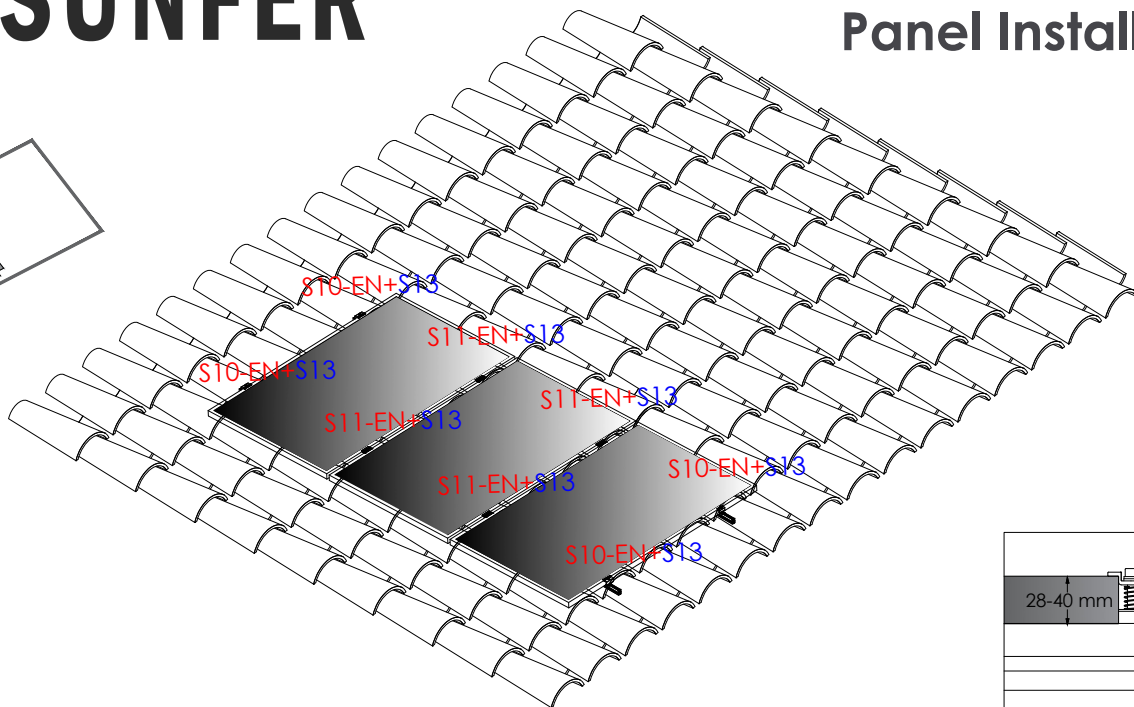
$L \leq 20m$

$d2 \leq 1770$

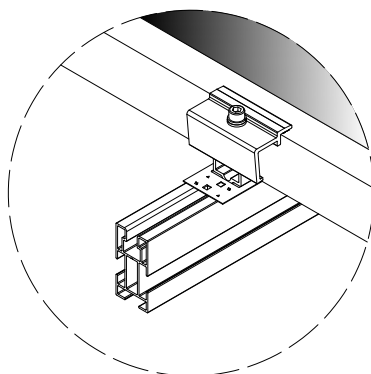
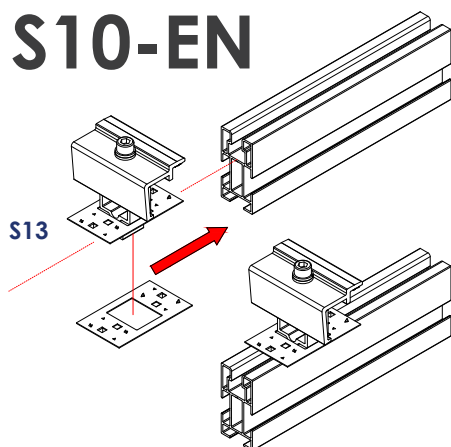
$0,2 \cdot d2 \leq d1 \leq 0,33 \cdot d2$



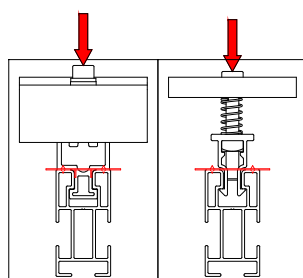
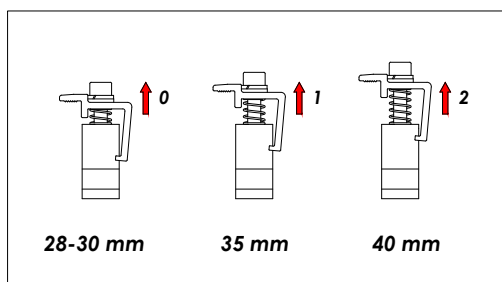
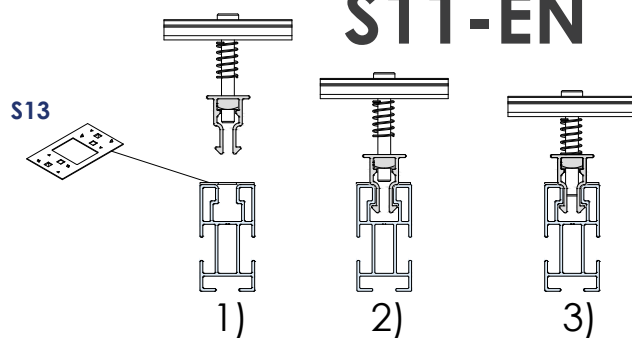
7 Nm



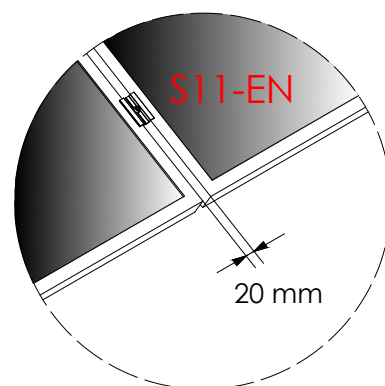
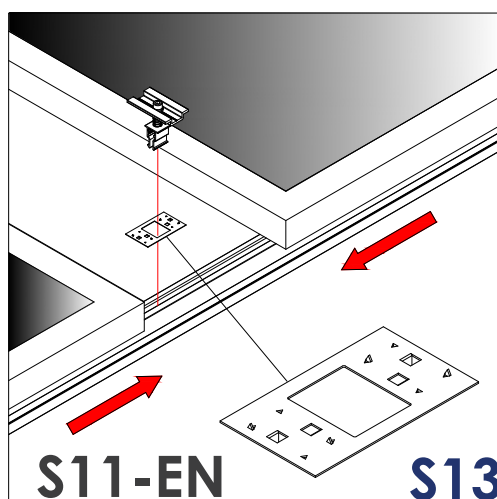
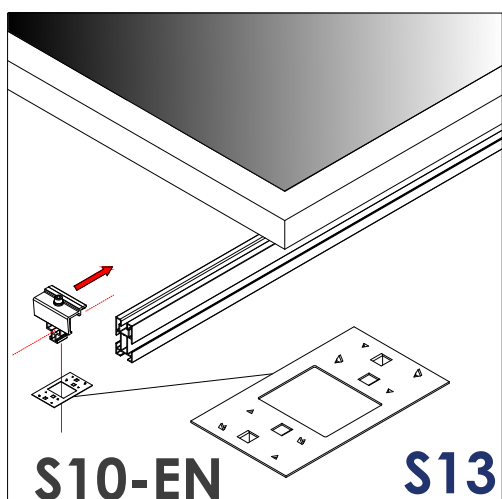
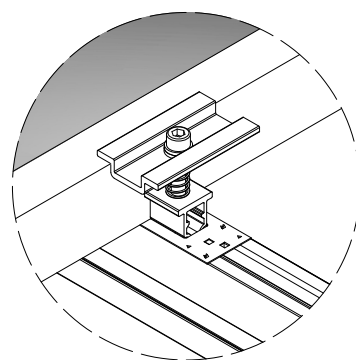
S10-EN



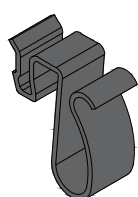
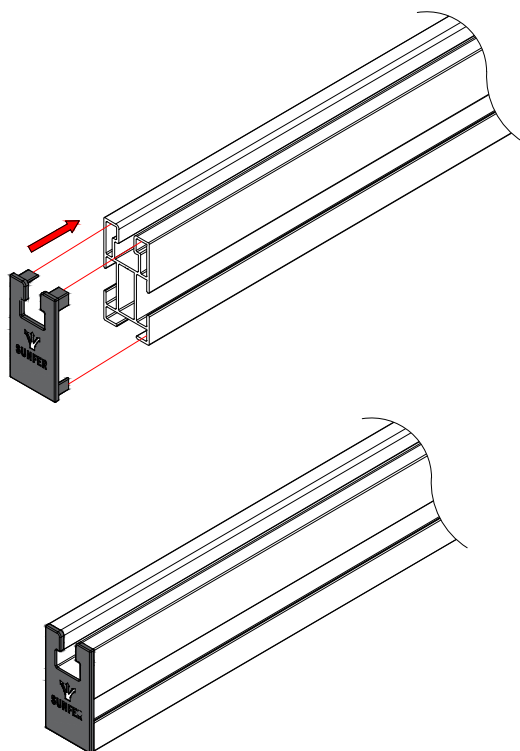
S11-EN



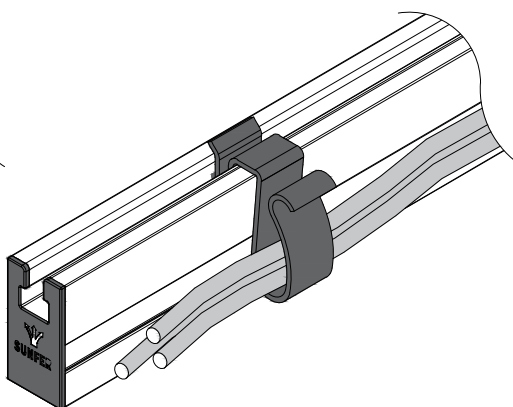
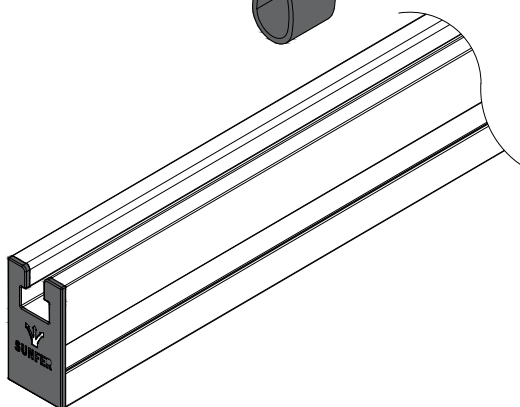
! Double check the recommended torque with a torque wrench to ensure a good connection. The pins must be pinned to the rail.



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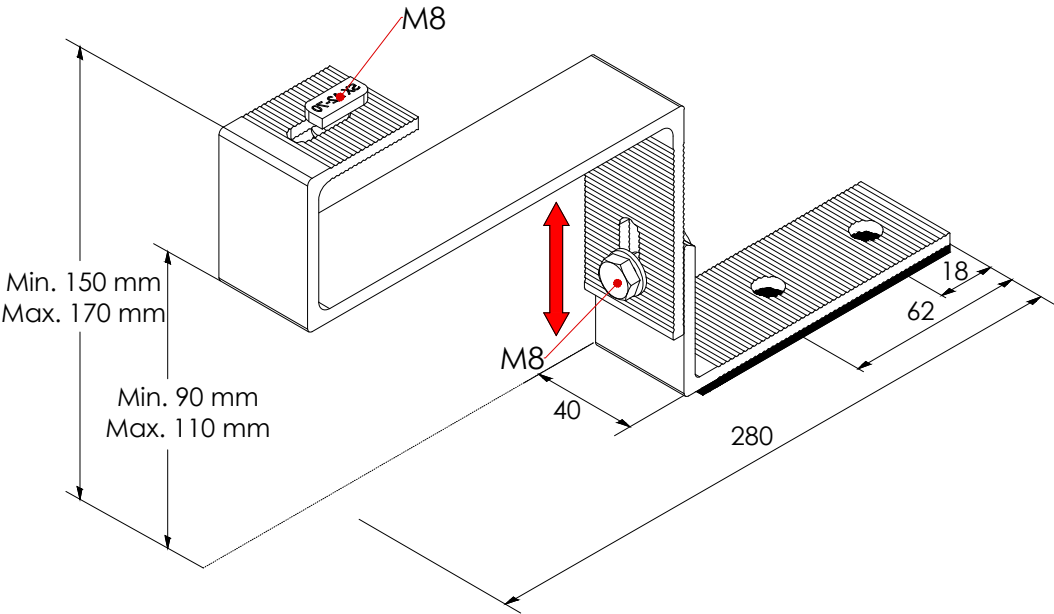
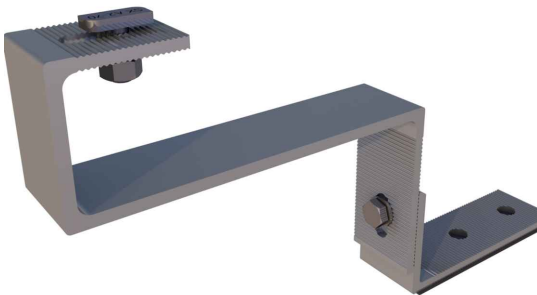


Optional Cable Clip
(Not included)



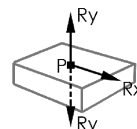
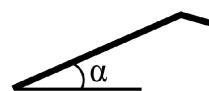
02.3V-EN
S02.3-EN

Technical
Information:
Anchor



Description	Coplanar Mount
Panel Orientation	Portrait/Landscape
Format	KIT of 1 to 4 panels
Joining Kit	S15-EN not included (optional)
Application Surface	Tile
Anchoring Surface	Concrete Slab
Type of fastening	Screwed (Not included)
Mount	S02.3-EN
Profile	G1-EN
Grounding Plate	S13
Maximum panel dimensions	2400x1150 mm
Panel thickness	from 28 to 40 mm
Materials	Fasteners: A2 AISI 304 Stainless Steel Profiles: EN AW 6005A T6 Aluminium, raw or anodized EPDM Weatherseal
Maximum Loads	According to Configuration
Structural calculation	Computational model checked against ESROCODE 9 "PROJECT ALUMINIUM STRUCTURES"

Maximum admissible loads and their reactions



5° Pitch

10° Pitch

15° Pitch

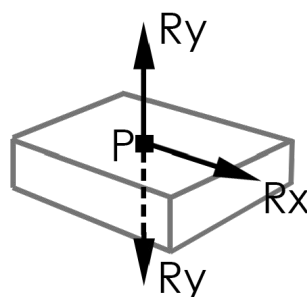
20° Pitch

25° Pitch

30° Pitch

35° Pitch

40° Pitch



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

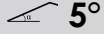







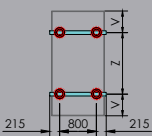

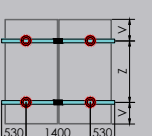

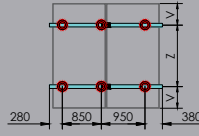



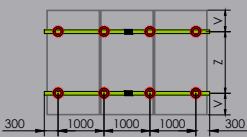



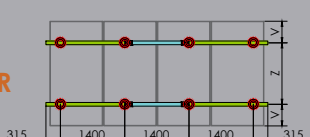

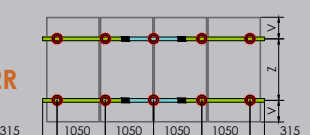
Maximum Admissible Loads and Reactions					 5°
	Loads		 (kN/Mount)	 (kN/Mount)	 (kN/Mount)
	 (Km/h)	 (Kg/m2)			
 	110	232	0.158	0.016	1.8429
	130	265	0.146	0.016	1.7166
	150	265	0.146	0.053	1.7340
	180	265	0.146	0.118	1.7648
	210	265	0.146	0.195	1.8012
	250	264	0.145	0.316	1.8466
 	110	107	0.155	0.032	1.8468
	130	131	0.152	0.032	1.8443
	150	128	0.149	0.105	1.8438
	180	123	0.144	0.236	1.8465
	210	117	0.138	0.390	1.8486
	250	107	0.127	0.633	1.8452
 	110	145	0.156	0.017	1.8437
	130	179	0.154	0.017	1.8463
	150	176	0.152	0.057	1.8459
	180	171	0.148	0.127	1.8479
	210	165	0.143	0.211	1.8495
	250	155	0.136	0.342	1.8470
 	110	87	0.154	0.025	1.8453
	130	106	0.150	0.025	1.8423
	150	103	0.147	0.084	1.8417
	180	98	0.140	0.187	1.8449
	210	92	0.133	0.309	1.8474
	250	82	0.121	0.502	1.8434
 	110	129	0.156	0.019	1.8458
	130	159	0.154	0.019	1.8487
	150	156	0.151	0.065	1.8482
	180	150	0.146	0.145	1.8405
	210	144	0.141	0.239	1.8423
	250	135	0.133	0.388	1.8495
 	110	64	0.151	0.038	1.8361
	130	78	0.148	0.038	1.8456
	150	75	0.143	0.127	1.8448
	180	70	0.135	0.285	1.8489
	210	63	0.124	0.471	1.8342
	250	54	0.110	0.764	1.8470
 	110	84	0.153	0.024	1.8365
	130	103	0.150	0.024	1.8441
	150	100	0.146	0.079	1.8435
	180	95	0.140	0.176	1.8468
	210	89	0.133	0.291	1.8494
	250	79	0.120	0.472	1.8453
 	110	119	0.155	0.020	1.8408
	130	147	0.153	0.020	1.8492
	150	144	0.151	0.068	1.8487
	180	138	0.145	0.151	1.8405
	210	132	0.139	0.250	1.8424
	250	122	0.130	0.406	1.8393

Table 1 - Maximum admissible loads and reactions.

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 (μ_1) 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/>





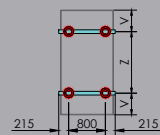






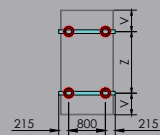

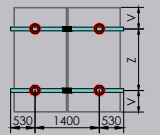

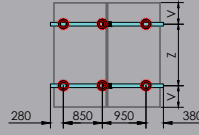

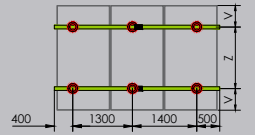

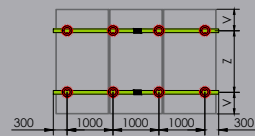

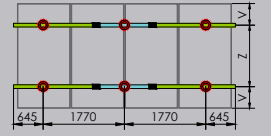



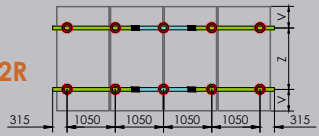
Maximum Admissible Loads and Reactions						
		Loads				
		 (Km/h)	 (Kg/m2)	(kN/Mount)	(kN/Mount)	(kN/Mount)
		110	238	0.319	0.015	1.8462
		130	265	0.287	0.017	1.6799
		150	265	0.287	0.054	1.6973
		180	265	0.287	0.119	1.7281
		210	265	0.287	0.196	1.7644
		250	265	0.287	0.318	1.8216
		110	109	0.311	0.029	1.8376
		130	134	0.306	0.034	1.8415
		150	131	0.300	0.108	1.8418
		180	126	0.290	0.238	1.8458
		210	120	0.278	0.392	1.8495
		250	110	0.258	0.635	1.8489
		110	149	0.316	0.016	1.8489
		130	183	0.311	0.018	1.8431
		150	180	0.306	0.058	1.8433
		180	175	0.298	0.129	1.8464
		210	169	0.289	0.212	1.8492
		250	159	0.273	0.343	1.8487
		110	89	0.309	0.023	1.8422
		130	109	0.304	0.027	1.8469
		150	106	0.296	0.085	1.8473
		180	100	0.282	0.189	1.8384
		210	94	0.267	0.311	1.8428
		250	84	0.243	0.504	1.8420
		110	132	0.314	0.018	1.8439
		130	163	0.310	0.021	1.8497
		150	160	0.305	0.066	1.8500
		180	154	0.295	0.146	1.8436
		210	148	0.285	0.241	1.8467
		250	138	0.267	0.389	1.8462
		110	66	0.305	0.036	1.8438
		130	80	0.297	0.041	1.8454
		150	77	0.288	0.130	1.8458
		180	71	0.270	0.288	1.8345
		210	65	0.251	0.474	1.8401
		250	55	0.221	0.767	1.8391
		110	86	0.307	0.022	1.8345
		130	106	0.304	0.025	1.8499
		150	102	0.294	0.080	1.8362
		180	97	0.281	0.178	1.8411
		210	91	0.267	0.293	1.8456
		250	81	0.242	0.474	1.8448
		110	122	0.313	0.019	1.8418
		130	150	0.308	0.022	1.8428
		150	147	0.303	0.069	1.8430
		180	142	0.293	0.153	1.8467
		210	135	0.280	0.252	1.8396
		250	126	0.264	0.407	1.8495

Table 2 - Maximum admissible loads and reactions.

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 (μ_1) 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/>











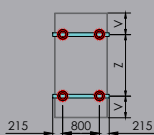

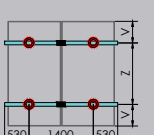

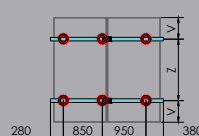

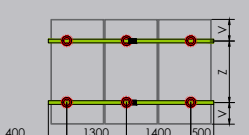

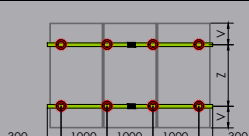

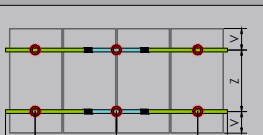

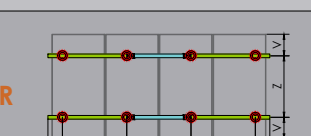

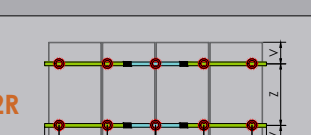
Maximum Admissible Loads and Reactions						 15°	
	Loads						
	 (Km/h)	 (Kg/m2)					
			(kN/Mount)	(kN/Mount)	(kN/Mount)		
	110	244	0.478	0.010	1.8481		
	130	265	0.420	0.051	1.6581		
	150	265	0.420	0.098	1.6882		
	180	265	0.420	0.182	1.7413		
	210	265	0.420	0.281	1.8041		
			(kN/Mount)	(kN/Mount)	(kN/Mount)		
	110	110	0.459	0.020	1.8428		
	130	133	0.446	0.101	1.8446		
	150	128	0.431	0.196	1.8494		
	180	118	0.401	0.364	1.8450		
	210	107	0.369	0.562	1.8489		
			(kN/Mount)	(kN/Mount)	(kN/Mount)		
	110	151	0.468	0.011	1.8468		
	130	184	0.457	0.055	1.8460		
	150	179	0.446	0.106	1.8496		
	180	169	0.423	0.196	1.8463		
	210	158	0.398	0.304	1.8493		
			(kN/Mount)	(kN/Mount)	(kN/Mount)		
	110	89	0.453	0.016	1.8450		
	130	106	0.435	0.080	1.8372		
	150	101	0.417	0.155	1.8429		
	180	91	0.382	0.289	1.8377		
	210	80	0.343	0.446	1.8423		
			(kN/Mount)	(kN/Mount)	(kN/Mount)		
	110	134	0.466	0.012	1.8495		
	130	162	0.452	0.062	1.8415		
	150	157	0.439	0.120	1.8456		
	180	147	0.414	0.223	1.8419		
	210	136	0.387	0.345	1.8452		
			(kN/Mount)	(kN/Mount)	(kN/Mount)		
	110	65	0.442	0.024	1.8454		
	130	76	0.418	0.122	1.8355		
	150	71	0.396	0.237	1.8427		
	180	61	0.351	0.439	1.8361		
	210	50	0.190	0.679	1.8420		
			(kN/Mount)	(kN/Mount)	(kN/Mount)		
	110	86	0.450	0.015	1.8394		
	130	103	0.434	0.075	1.8415		
	150	98	0.416	0.146	1.8474		
	180	88	0.380	0.271	1.8420		
	210	77	0.340	0.419	1.8468		
			(kN/Mount)	(kN/Mount)	(kN/Mount)		
	110	123	0.461	0.013	1.8401		
	130	150	0.451	0.065	1.8492		
	150	144	0.435	0.126	1.8435		
	180	135	0.411	0.233	1.8496		
	210	123	0.378	0.360	1.8431		
			250	105	0.330	0.560	1.8416

Table 3 - Maximum admissible loads and reactions.

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 (μ_1) 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/>











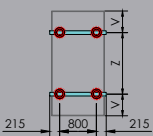

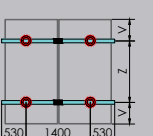

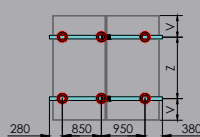



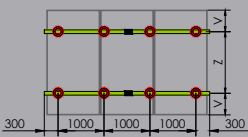

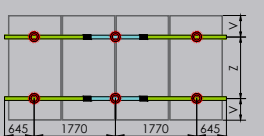

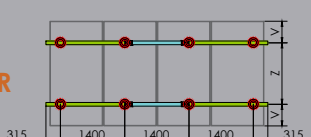

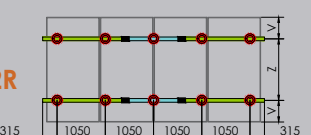

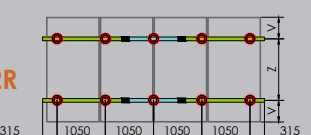
Maximum Admissible Loads and Reactions					
	Loads				
	 (Km/h)	 (Kg/m ²)			
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	258	0.649	0.012	1.8468
	130	265	0.541	0.053	1.5767
	150	265	0.541	0.101	1.6067
	180	265	0.541	0.184	1.6599
	210	265	0.541	0.284	1.7227
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	117	0.625	0.025	1.8477
	130	141	0.605	0.106	1.8443
	150	135	0.582	0.201	1.8416
	180	125	0.544	0.369	1.8431
	210	113	0.499	0.567	1.8431
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	160	0.636	0.013	1.8473
	130	195	0.622	0.057	1.8467
	150	189	0.604	0.109	1.8446
	180	179	0.575	0.199	1.8458
	210	167	0.540	0.306	1.8457
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	94	0.613	0.020	1.8382
	130	113	0.592	0.084	1.8435
	150	107	0.565	0.159	1.8402
	180	97	0.520	0.293	1.8421
	210	85	0.466	0.450	1.8420
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	142	0.633	0.015	1.8496
	130	172	0.615	0.065	1.8445
	150	166	0.596	0.123	1.8422
	180	156	0.563	0.226	1.8435
	210	144	0.524	0.348	1.8434
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	69	0.600	0.030	1.8439
	130	81	0.569	0.128	1.8387
	150	75	0.535	0.243	1.8346
	180	65	0.477	0.445	1.8369
	210	53	0.255	0.685	1.8368
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	91	0.610	0.019	1.8352
	130	109	0.588	0.079	1.8373
	150	104	0.565	0.150	1.8468
	180	94	0.519	0.275	1.8487
	210	82	0.463	0.423	1.8486
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	110	131	0.630	0.016	1.8477
	130	159	0.613	0.068	1.8493
	150	153	0.592	0.129	1.8469
	180	143	0.558	0.236	1.8483
	210	131	0.516	0.364	1.8482
			(kN/Mount)	(kN/Mount)	(kN/Mount)
	250	112	0.450	0.563	1.8469

Table 4 - Maximum admissible loads and reactions.

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 (μ_1) 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/>



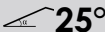

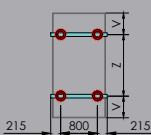






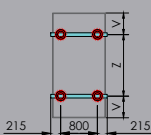

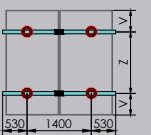

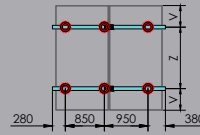

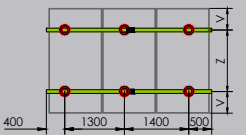

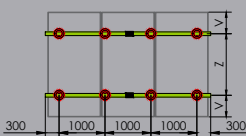

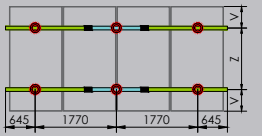



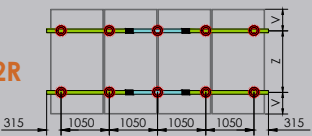
Maximum Admissible Loads and Reactions						 25°
		Loads				
		 (Km/h)	 (Kg/m2)	(kN/Mount)	(kN/Mount)	(kN/Mount)
		110	228	0.689	0.016	1.5429
		130	265	0.646	0.056	1.4762
		150	148	0.688	0.104	1.5062
		180	148	0.688	0.188	0.9895
		210	148	0.688	0.287	1.0523
		250	148	0.688	0.443	1.1510
		110	106	0.686	0.031	1.6003
		130	133	0.688	0.113	1.6567
		150	148	0.688	0.207	1.7168
		180	148	0.688	0.375	1.8231
		210	148	0.688	0.574	1.8415
		250	148	0.688	0.886	1.8442
		110	143	0.686	0.017	1.5716
		130	179	0.687	0.061	1.6129
		150	148	0.688	0.112	1.4351
		180	148	0.688	0.203	1.5165
		210	148	0.688	0.310	1.6128
		250	148	0.688	0.478	1.7641
		110	87	0.687	0.025	1.6270
		130	109	0.688	0.089	1.6911
		150	148	0.688	0.165	1.7626
		180	148	0.688	0.298	1.8426
		210	148	0.688	0.455	1.8413
		250	148	0.688	0.702	1.8446
		110	128	0.689	0.019	1.5887
		130	160	0.689	0.069	1.6325
		150	148	0.688	0.127	1.5925
		180	148	0.688	0.230	1.6829
		210	148	0.688	0.352	1.7897
		250	148	0.688	0.543	1.8417
		110	65	0.685	0.038	1.6649
		130	82	0.690	0.136	1.7539
		150	148	0.688	0.251	1.8448
		180	148	0.688	0.453	1.8434
		210	148	0.688	0.693	1.8419
		250	148	0.688	1.069	1.8460
		110	85	0.690	0.023	1.6369
		130	106	0.688	0.084	1.6967
		150	148	0.688	0.155	1.7699
		180	148	0.688	0.280	1.8400
		210	148	0.688	0.428	1.8387
		250	148	0.688	0.661	1.8420
		110	118	0.686	0.020	1.5888
		130	148	0.688	0.072	1.6401
		150	148	0.688	0.133	1.6948
		180	148	0.688	0.241	1.7915
		210	148	0.688	0.368	1.8437
		250	148	0.688	0.568	1.8462

Table 5 - Maximum admissible loads and reactions.

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 (μ_1) 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/>



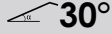







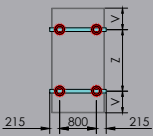

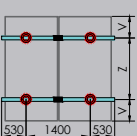

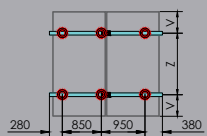

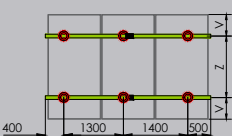



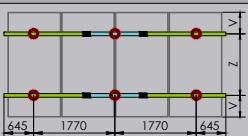

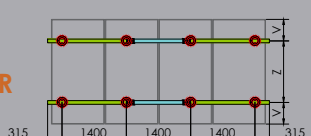

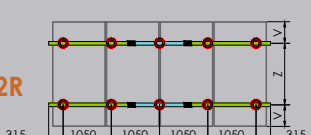
Maximum Admissible Loads and Reactions					 30°
	Loads				
	 (Km/h)	 (Kg/m ²)			
 	110	199	0.688	0.026	1.2947
	130	249	0.689	0.004	1.3365
	150	128	0.688	0.023	1.3839
	180	128	0.688	0.069	0.9341
	210	128	0.688	0.125	1.0333
	250	128	0.688	0.211	1.1893
 	110	92	0.690	0.052	1.3996
	130	115	0.690	0.007	1.4810
	150	128	0.688	0.046	1.5759
	180	128	0.688	0.139	1.7438
	210	128	0.688	0.249	1.8442
	250	128	0.688	0.422	1.8448
 	110	124	0.686	0.028	1.3452
	130	156	0.690	0.004	1.4144
	150	128	0.688	0.025	1.3031
	180	128	0.688	0.075	1.4317
	210	128	0.688	0.135	1.5837
	250	128	0.688	0.228	1.8227
 	110	75	0.690	0.041	1.4389
	130	93	0.685	0.006	1.5276
	150	128	0.688	0.036	1.6405
	180	128	0.688	0.110	1.8399
	210	128	0.688	0.198	1.8430
	250	128	0.688	0.335	1.8437
 	110	110	0.685	0.032	1.3605
	130	138	0.687	0.004	1.4334
	150	128	0.688	0.028	1.4461
	180	128	0.688	0.085	1.5888
	210	128	0.688	0.153	1.7575
	250	128	0.688	0.259	1.8487
 	110	55	0.684	0.063	1.4944
	130	69	0.686	0.008	1.6208
	150	128	0.688	0.055	1.7643
	180	128	0.688	0.168	1.8432
	210	128	0.688	0.301	1.8472
	250	128	0.688	0.301	1.8472
 	110	72	0.683	0.039	1.4333
	130	91	0.690	0.005	1.5432
	150	128	0.688	0.034	1.6587
	180	128	0.688	0.104	1.8414
	210	128	0.688	0.186	1.8446
	250	128	0.688	0.315	1.8453
 	110	102	0.686	0.033	1.3745
	130	128	0.688	0.005	1.4526
	150	128	0.688	0.029	1.5389
	180	128	0.688	0.089	1.6916
	210	128	0.688	0.160	1.8477
	250	128	0.688	0.271	1.8483

Table 6 - Maximum admissible loads and reactions.

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 (μ_1) 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.

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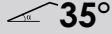







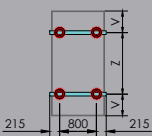

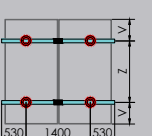

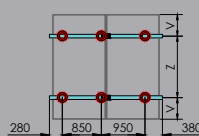



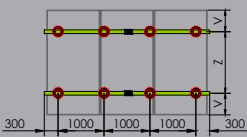

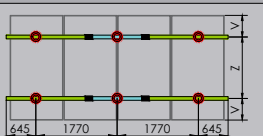

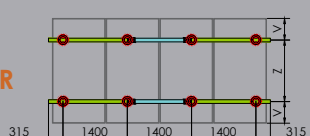

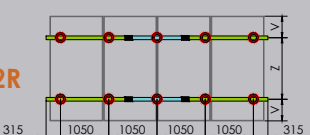
Maximum Admissible Loads and Reactions					
	Loads				
	 (Km/h)	 (Kg/m ²)			
					
	110	218	0.690	0.022	1.0873
	130	265	0.674	0.001	1.1064
	150	138	0.686	0.027	1.1539
	180	138	0.686	0.074	0.8167
	210	138	0.686	0.129	0.9158
					
	110	99	0.688	0.043	1.1881
	130	124	0.689	0.002	1.2711
	150	138	0.686	0.055	1.3661
	180	138	0.686	0.148	1.5339
	210	138	0.686	0.258	1.8317
					
	110	135	0.688	0.023	1.1392
	130	169	0.688	0.001	1.2028
	150	138	0.686	0.030	1.1231
	180	138	0.686	0.080	1.2517
	210	138	0.686	0.139	1.4036
					
	110	80	0.687	0.034	1.2249
	130	100	0.687	0.002	1.3216
	150	138	0.686	0.043	1.4344
	180	138	0.686	0.117	1.7127
	210	138	0.686	0.205	1.8460
					
	110	120	0.689	0.027	1.1584
	130	150	0.689	0.001	1.2276
	150	138	0.686	0.034	1.2463
	180	138	0.686	0.091	1.3890
	210	138	0.686	0.158	1.5577
					
	110	59	0.690	0.052	1.2952
	130	73	0.684	0.002	1.4107
	150	138	0.686	0.066	1.5843
	180	138	0.686	0.179	1.8481
	210	138	0.686	0.312	1.8472
					
	110	78	0.690	0.032	1.2345
	130	97	0.687	0.001	1.3296
	150	138	0.686	0.041	1.4451
	180	138	0.686	0.110	1.7544
	210	138	0.686	0.193	1.8425
					
	110	111	0.690	0.028	1.1714
	130	138	0.686	0.001	1.2409
	150	138	0.686	0.035	1.3273
	180	138	0.686	0.095	1.4799
	210	138	0.686	0.165	1.6664
	250	138	0.686	0.276	1.8476

Table 7 - Maximum admissible loads and reactions.

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 (μ_1) 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/>





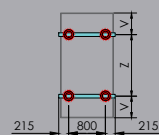






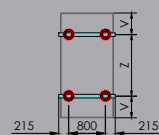

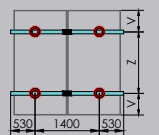

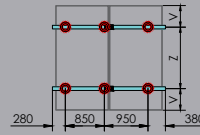

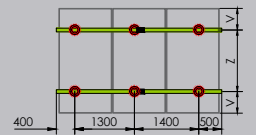

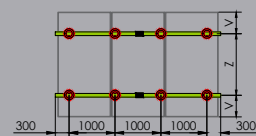

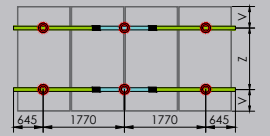



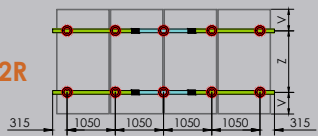
Maximum Admissible Loads and Reactions						 40°
		Loads		 (kN/Mount)	 (kN/Mount)	 (kN/Mount)
		 (Km/h)	 (Kg/m2)			
		110	257	0.689	0.017	0.9169
		130	265	0.581	0.006	0.8267
		150	162	0.690	0.032	0.8710
		180	162	0.690	0.079	0.7103
		210	162	0.690	0.134	0.8029
		250	162	0.690	0.221	0.9485
		110	115	0.687	0.033	1.0102
		130	144	0.688	0.012	1.0873
		150	162	0.690	0.065	1.1759
		180	162	0.690	0.158	1.3465
		210	162	0.690	0.268	1.6058
		250	162	0.690	0.442	1.8459
		110	158	0.687	0.018	0.9653
		130	198	0.688	0.007	1.0252
		150	162	0.690	0.035	0.9687
		180	162	0.690	0.085	1.0887
		210	162	0.690	0.145	1.2305
		250	162	0.690	0.238	1.4536
		110	93	0.689	0.026	1.0490
		130	116	0.688	0.010	1.1379
		150	162	0.690	0.051	1.2432
		180	162	0.690	0.125	1.6003
		210	162	0.690	0.213	1.8479
		250	162	0.690	0.350	1.8464
		110	140	0.688	0.020	0.9824
		130	175	0.688	0.007	1.0470
		150	162	0.690	0.040	1.0750
		180	162	0.690	0.097	1.2082
		210	162	0.690	0.164	1.3656
		250	162	0.690	0.271	1.6131
		110	67	0.686	0.040	1.1066
		130	84	0.687	0.015	1.2232
		150	162	0.690	0.078	1.4835
		180	162	0.690	0.191	1.8466
		210	162	0.690	0.324	1.8459
		250	162	0.690	0.533	1.8440
		110	90	0.688	0.025	1.0534
		130	112	0.686	0.009	1.1430
		150	162	0.690	0.048	1.2509
		180	162	0.690	0.118	1.6393
		210	162	0.690	0.200	1.8477
		250	162	0.690	0.329	1.8462
		110	129	0.687	0.021	0.9929
		130	162	0.690	0.008	1.0652
		150	162	0.690	0.042	1.1458
		180	162	0.690	0.101	1.2883
		210	162	0.690	0.172	1.4609
		250	162	0.690	0.283	1.7257

Table 8 - Maximum admissible loads and reactions.

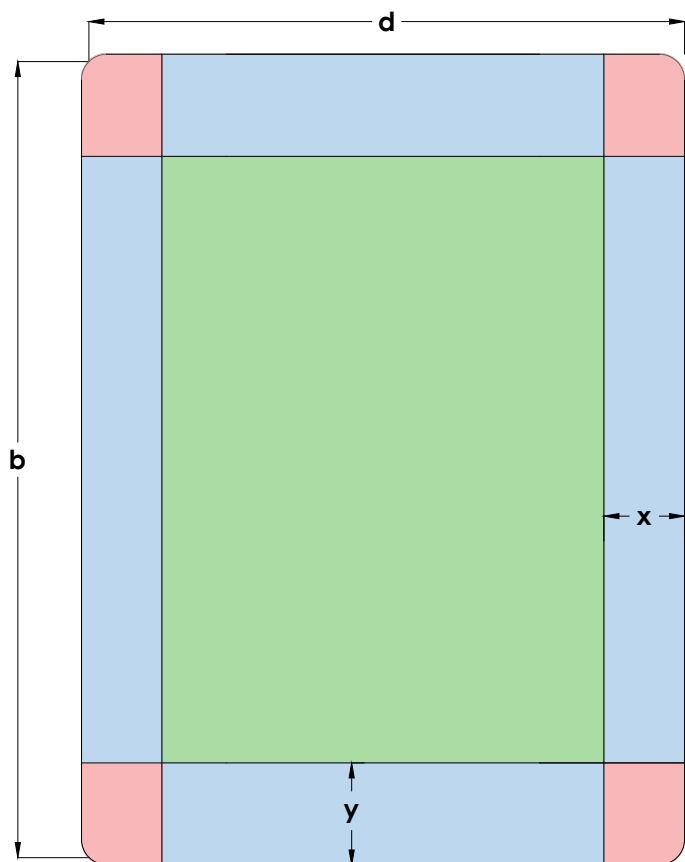
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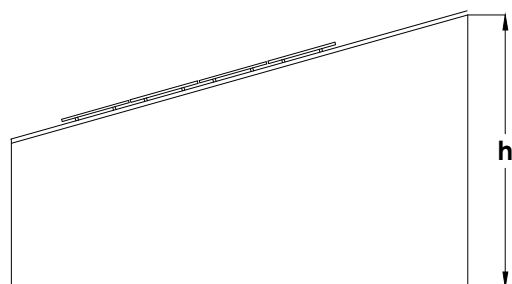







$$e = \min [b, 2h]$$

$$x = \text{Max} [e/10, 0.5\text{m}]$$

$$y = \text{Max} [e/4, 0.5\text{m}]$$



-  Installation Safe Zone
-  Turbulent Zone
-  Extremely Turbulent Zone

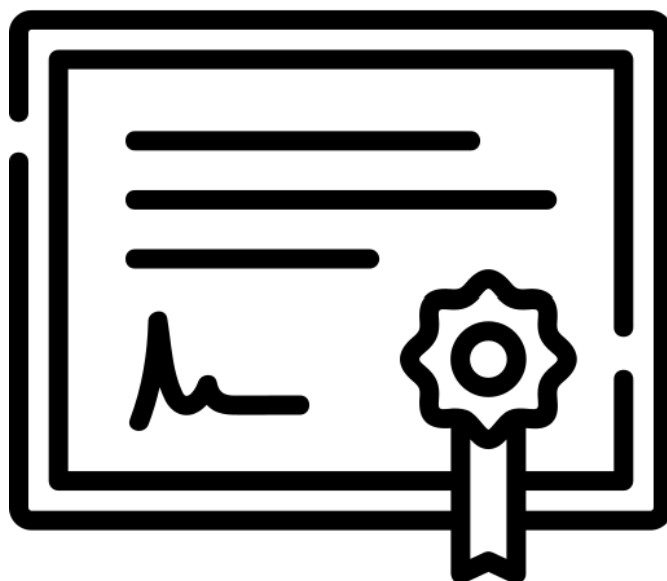
To avoid turbulence and other unwanted natural effects, it is strongly recommended to install photovoltaic panels inside of the green zone.



02.3V-EN

Installation Video





- **ISO 9001 Certificate**
- **ISO 14001 Certificate**
- **UNE-EN 1090 Certificate**
- **CE Marking**
- **Guarantee**



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:

02.3V-EN

TOLERANCES IN GEOMETRIC INFORMATION:

EN 1090-3

WELDABILITY:

--

FRACTURE RESISTANCE:

--

FIRE REACTION:

Classified material A1

CADMIUM EMISSION:

N/A

RADIOACTIVITY 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*

 SUNFER	DECLARATION OF PERFORMANCE	DdP
		REVISION 01

DECLARATION OF PERFORMANCE NUMBER:	P-0119
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1. PRODUCT DESCRIPTION.

UNIQUE IDENTIFICATION CODE OF THE PRODUCT TYPE:	02.3V-EN
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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 <input type="checkbox"/>	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 <ul style="list-style-type: none"> - Carrying capacity - Fatigue resistance: - Fire resistance: - 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 (EU) No. 305/2011 under the responsibility of the manufacturer identified above.

Manufacturer's Name: Voro Gómez Nacher

Date of issue: 02/08/2023

Signature:

