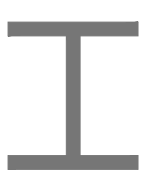
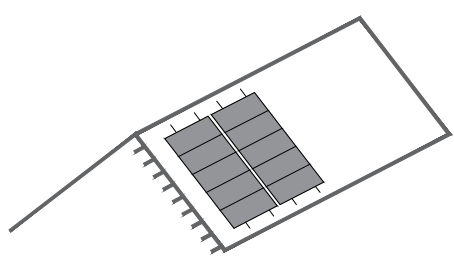


Installations

Select



Landscape



Steel Beam

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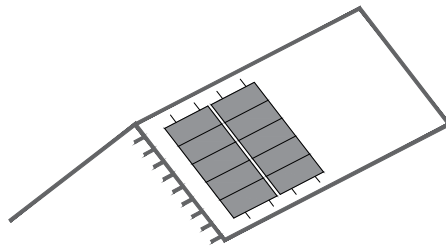
SUNFER

Solar Mounting Systems

01.1V-EN



Landscape



Steel Beam

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Return

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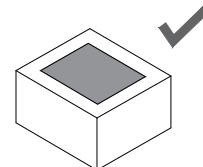
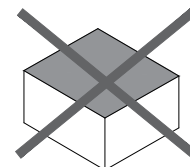
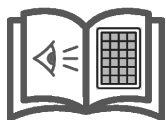
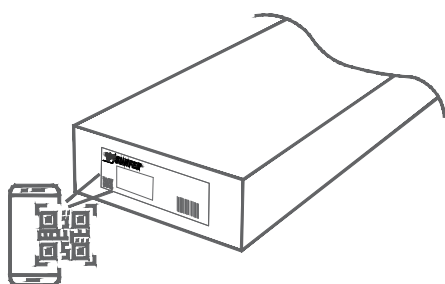
- 1. General Information**
- 2. Kit Contents**
- 3. Landscape Installation**
- 4. Fastening technical Information**
- 5. Maximum Loads and Reactions**
- 6. Installation Zone**
- 7. Video of Installation**
- 8. Certifications and Guarantee**





General Information and Recommendations **ENG**

- All installation instructions and product specifications provided must be adhered to.
- Check the condition of the roof covering and its carrying capacity. The management overseeing installation is responsible for verifying that the substructure of the roof as well as the static structure of the building itself is capable of supporting additional loads before any installation is carried out.
- To avoid turbulence from wind a minimum security distance (defined by regulations) must be maintained between the photovoltaic installations and roof edges, as well as other obstacles such as chimneys or vents.
- In the case of chimneys or other features which may need future maintenance, a minimum distance must be maintained in order to facilitate said maintenance or to extinguish fires. This distance shall be either 1m or that suggested by the relevant authority, whichever is greater.
- The surface of the roof covering must be clean and dry. Any major irregularities of the roof must be corrected or eliminated.
- The mounting must always be anchored to the structure of the roof.
- Check the weathertightness of the mount once fastened.
- Place solar panels such that they are distributed symmetrically along the support, leaving equal overhangs at each end.
- Clamps must not be tightened using impact drivers.
- Check that the support attachment points are compatible with the solar panel manufacturer's specifications.
- Uninstallation must be carried out in the reverse order from the installation.
- During the shipping of products take extreme care to maintain the integrity of the packaging. Store in a dry, well-ventilated area. Minimize exposure to large temperature differences and humidity. Avoid outdoor storage. Avoid sources of dripping water, puddles, splashing, or any other contact with water in the storage area. If the product becomes wet, immediately dry and clean as well as possible. Do not leave the product directly on the floor or ground where it may attract moisture. Store on the shipment's 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.

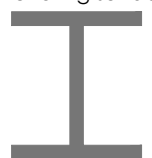




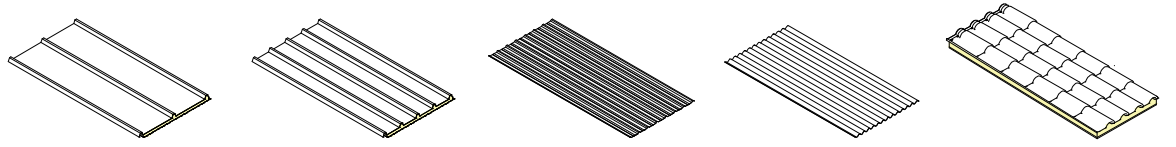
	S01.1-EN	S10-EN	S11-EN	UG1-EN	G1-1230-EN	G1-1800-EN	TG1	S13
	4	4	-	-	2	-	4	2
	4	4	2	2	4	-	4	3
	6	4	2	2	4	-	4	3
	6	4	4	2	-	4	4	4
	8	4	4	2	-	4	4	4
	6	4	6	4	2	4	4	5
	8	4	6	4	2	4	4	5
	10	4	6	4	2	4	4	5



Anchoring surfaces:



Steel Beam



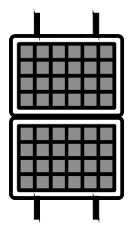
Max. 2279x1150 mm
Thickness: 28-40 mm



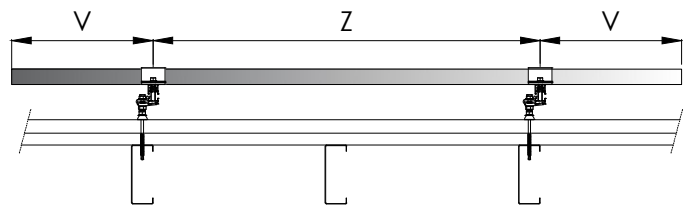
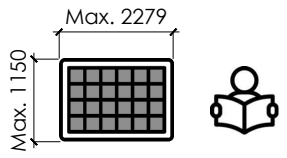
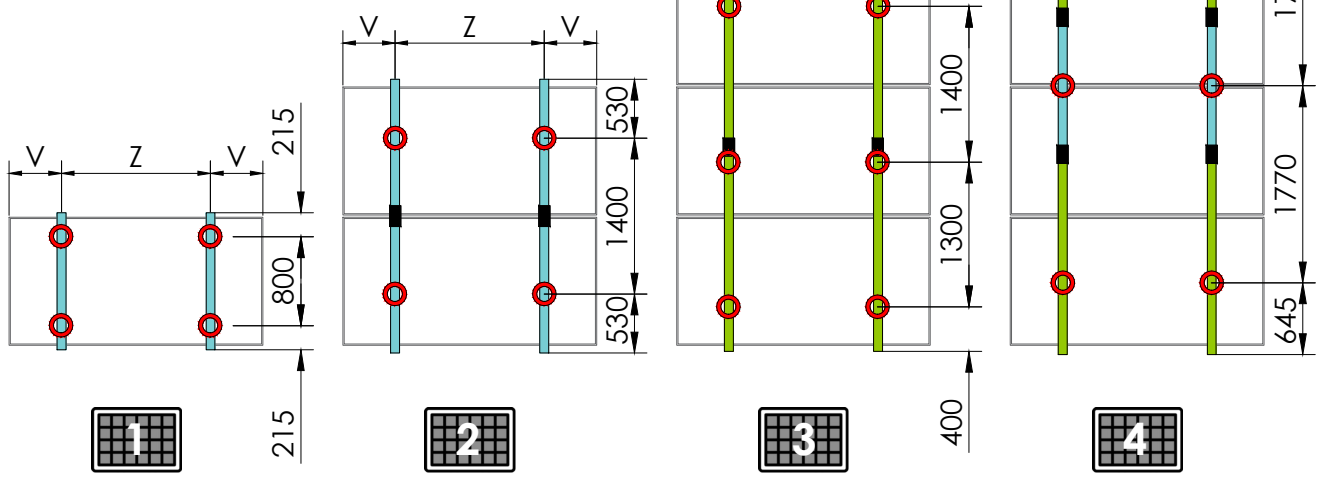
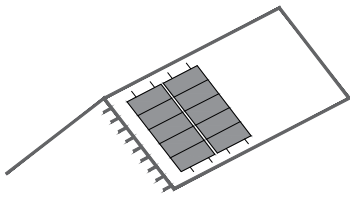
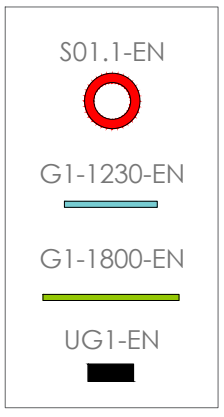
Profiles of **EN AW 6005A T6 aluminium**



Fasteners of **A2-70 stainless steel**



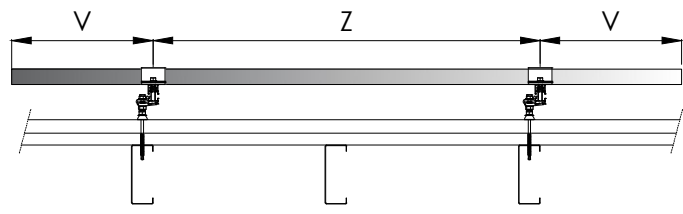
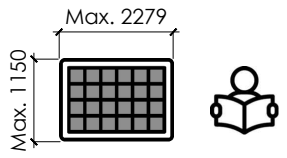
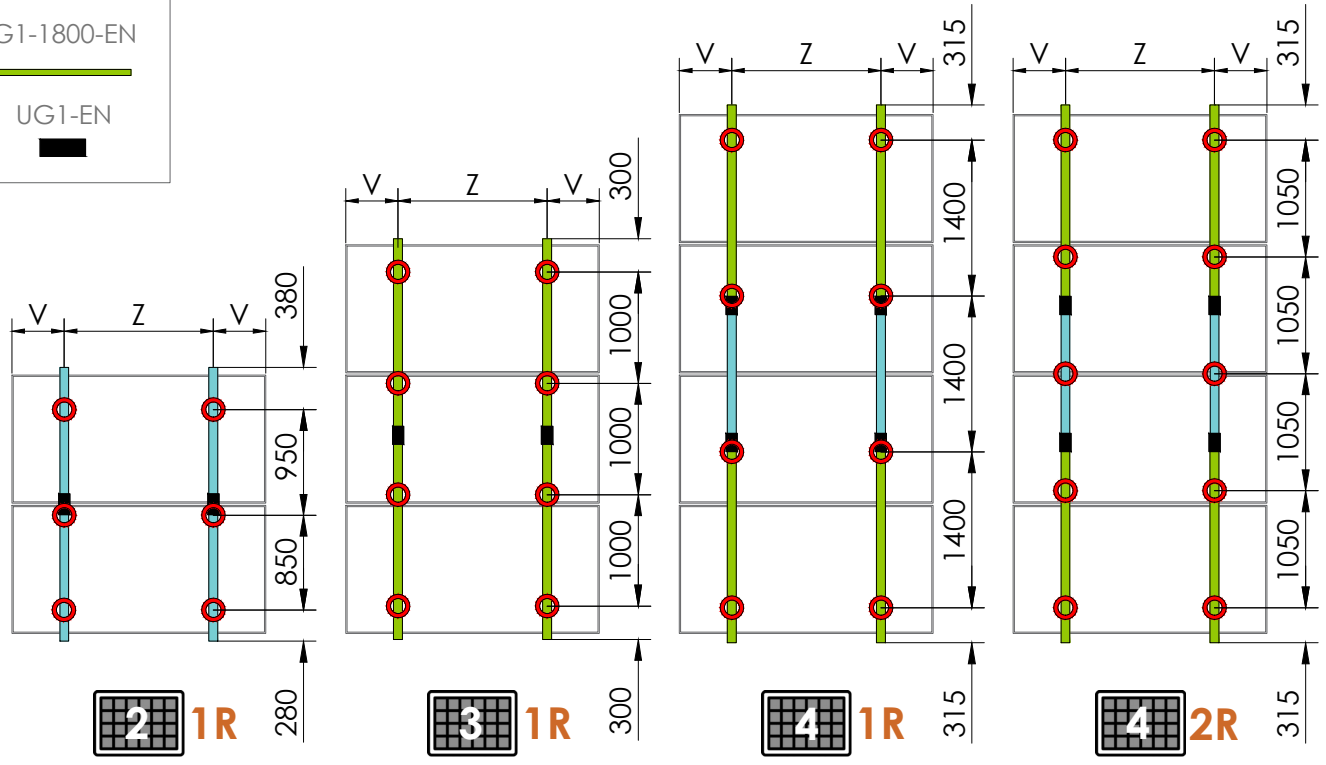
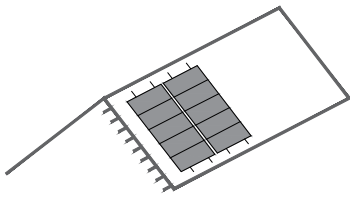
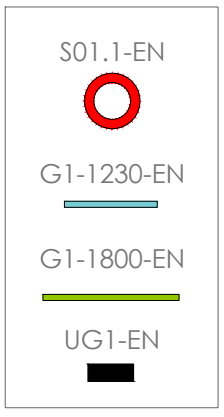
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The maximum distance "Z" between profiles and the overhang "V" of the panel must be obtained from the technical datasheets of the panel manufacturer.

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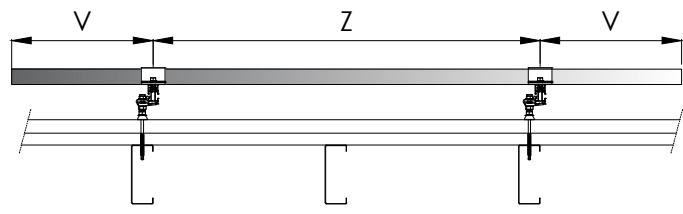
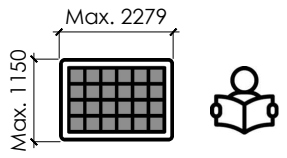
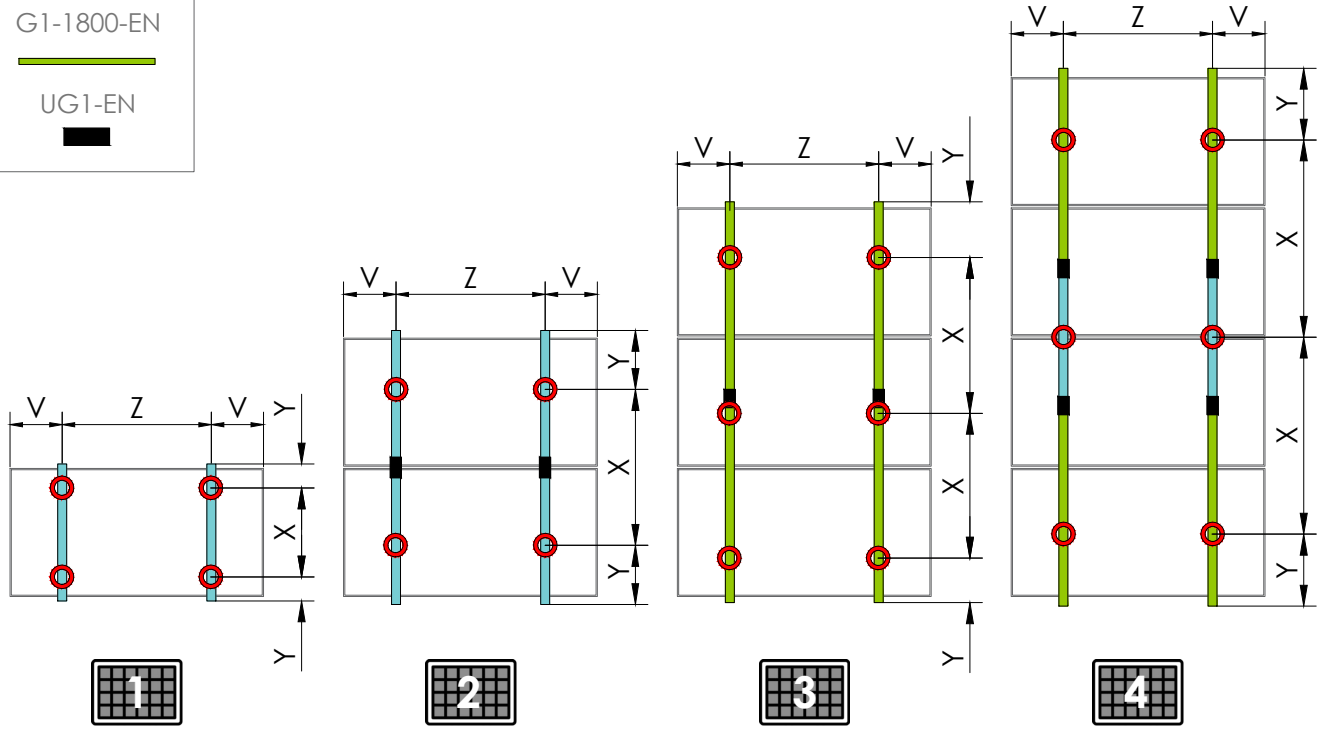
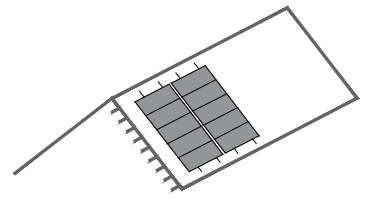
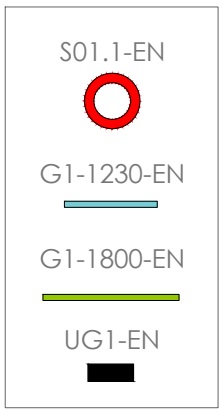




The maximum distance "Z" between profiles and the overhang "V" of the panel must be obtained from the technical datasheets of the panel manufacturer.

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$X \leq 1000$
 $0,2 * X \leq Y \leq 0,33 * X$

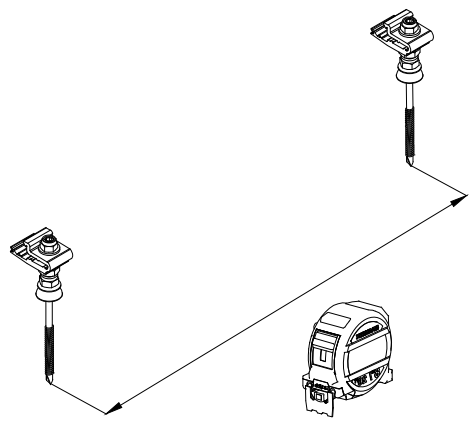
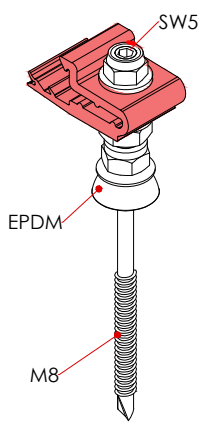
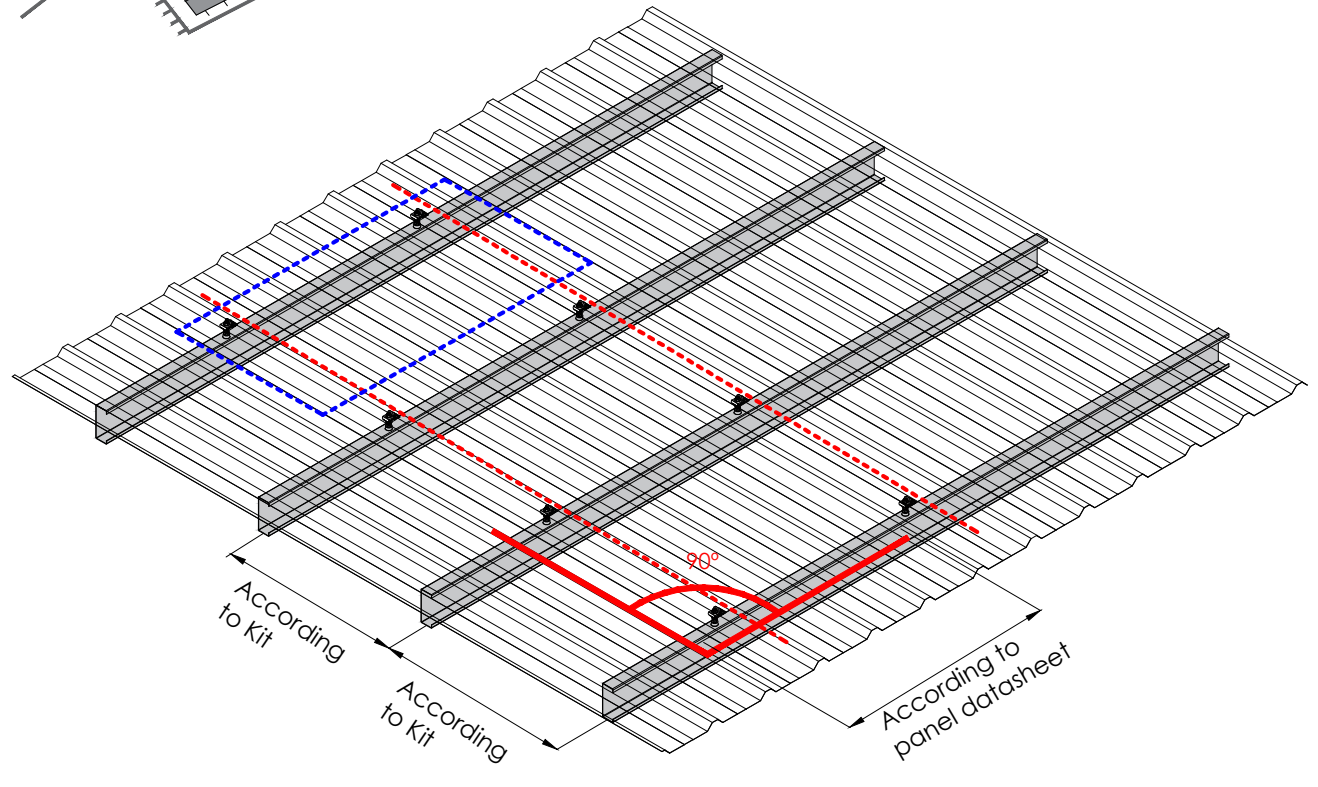
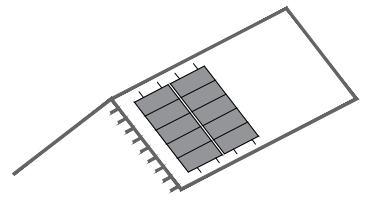


The maximum distance "Z" between profiles and the overhang "V" of the panel must be obtained from the technical datasheets of the panel manufacturer.

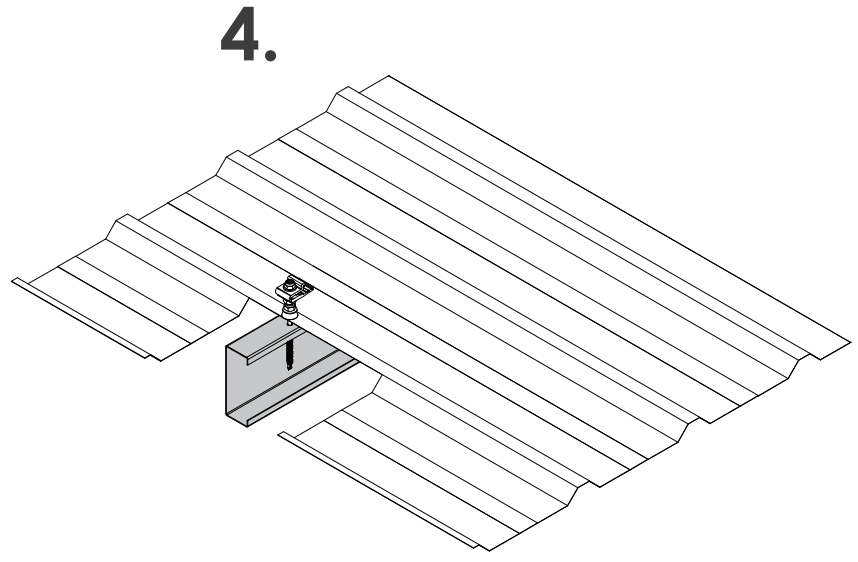
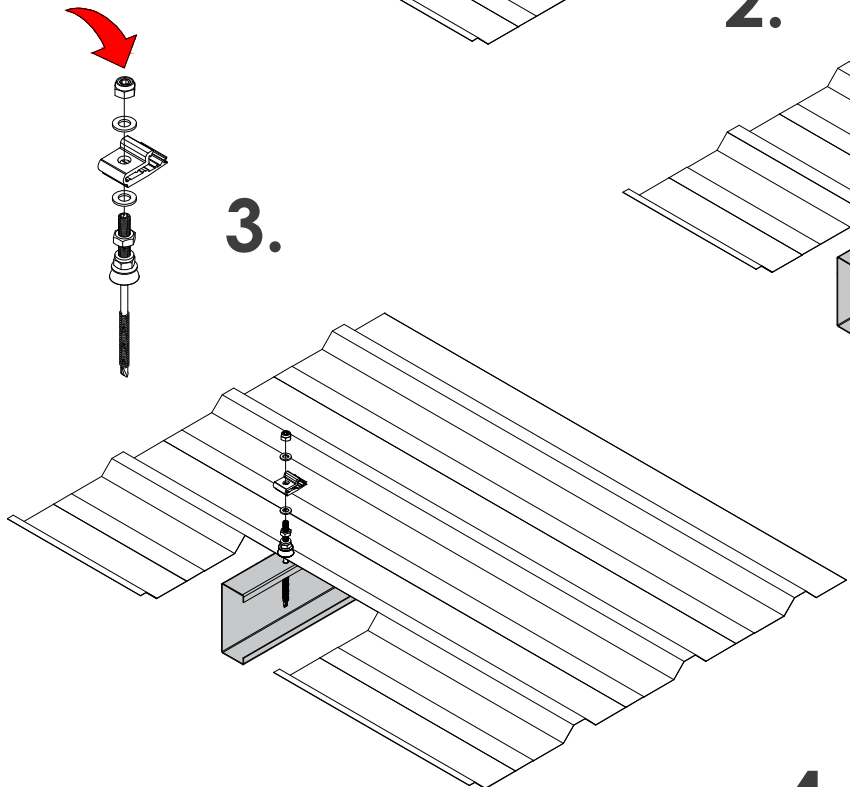
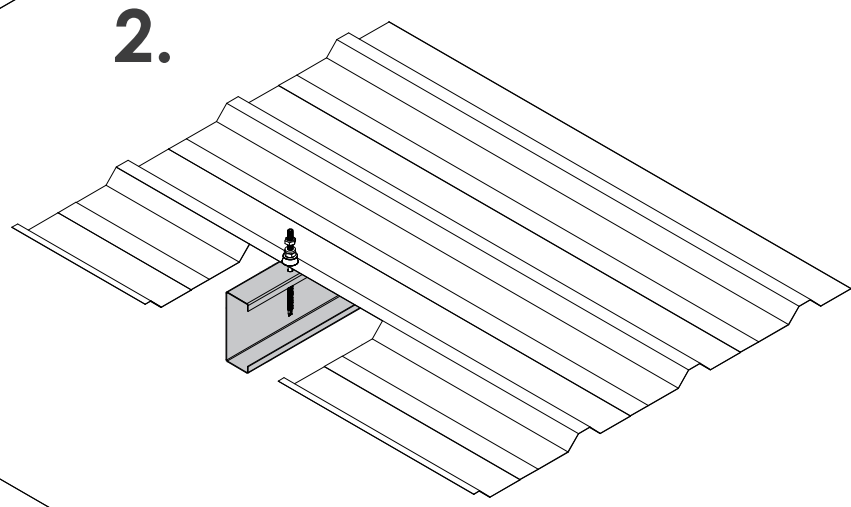
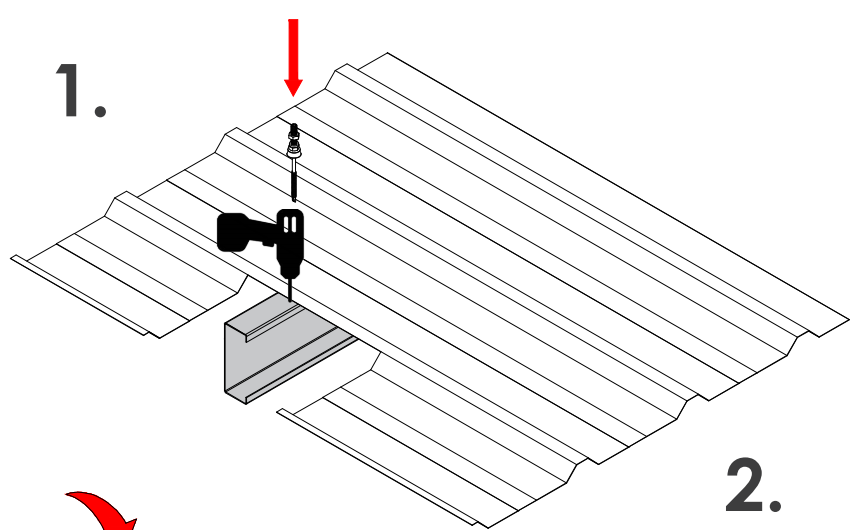
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----- Panel
 ----- G1-EN



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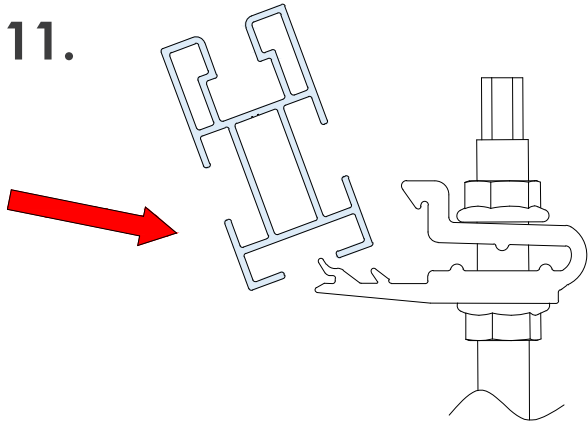
*Must tolerate reaction forces at the anchor points



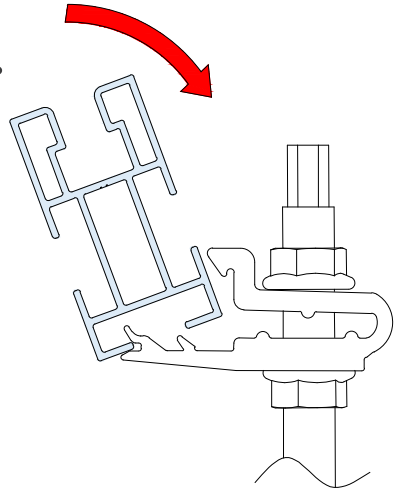
Sunfer reserves the right to make changes at any time. All illustrations are for example only and may differ from actual products provided.



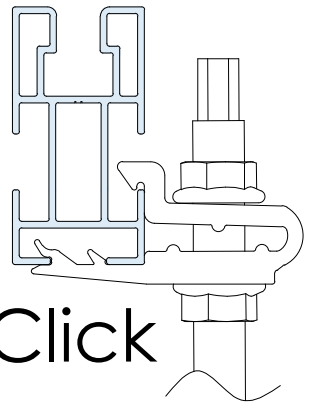
11.



12.

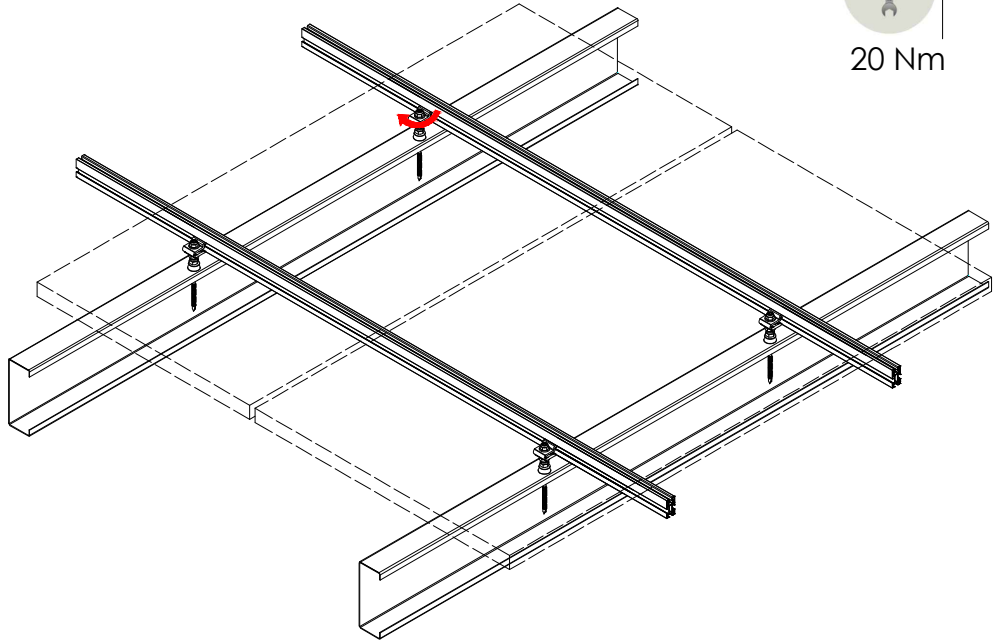


13.



* Click

13
20 Nm



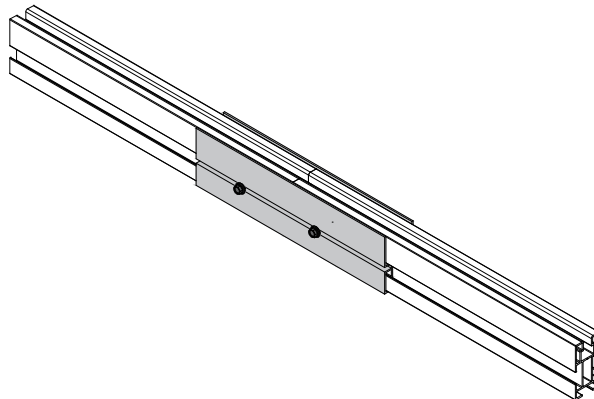
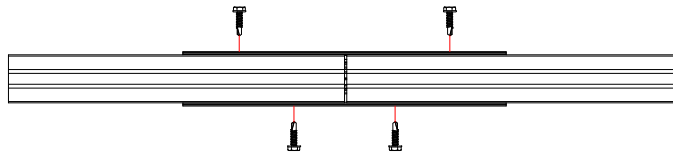
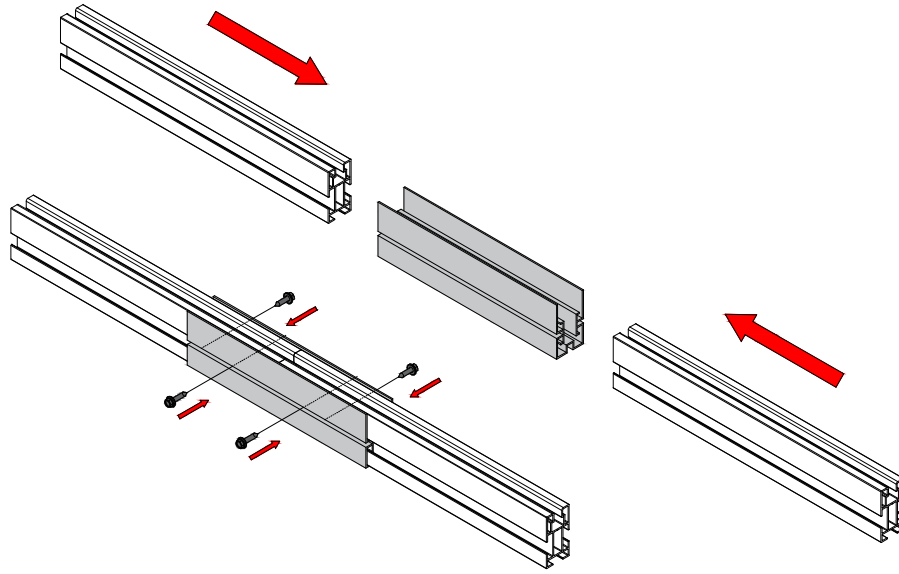
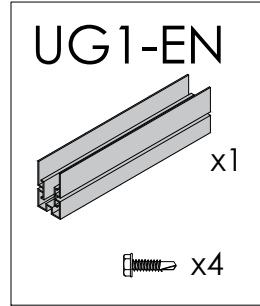
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6 Nm

(x4)

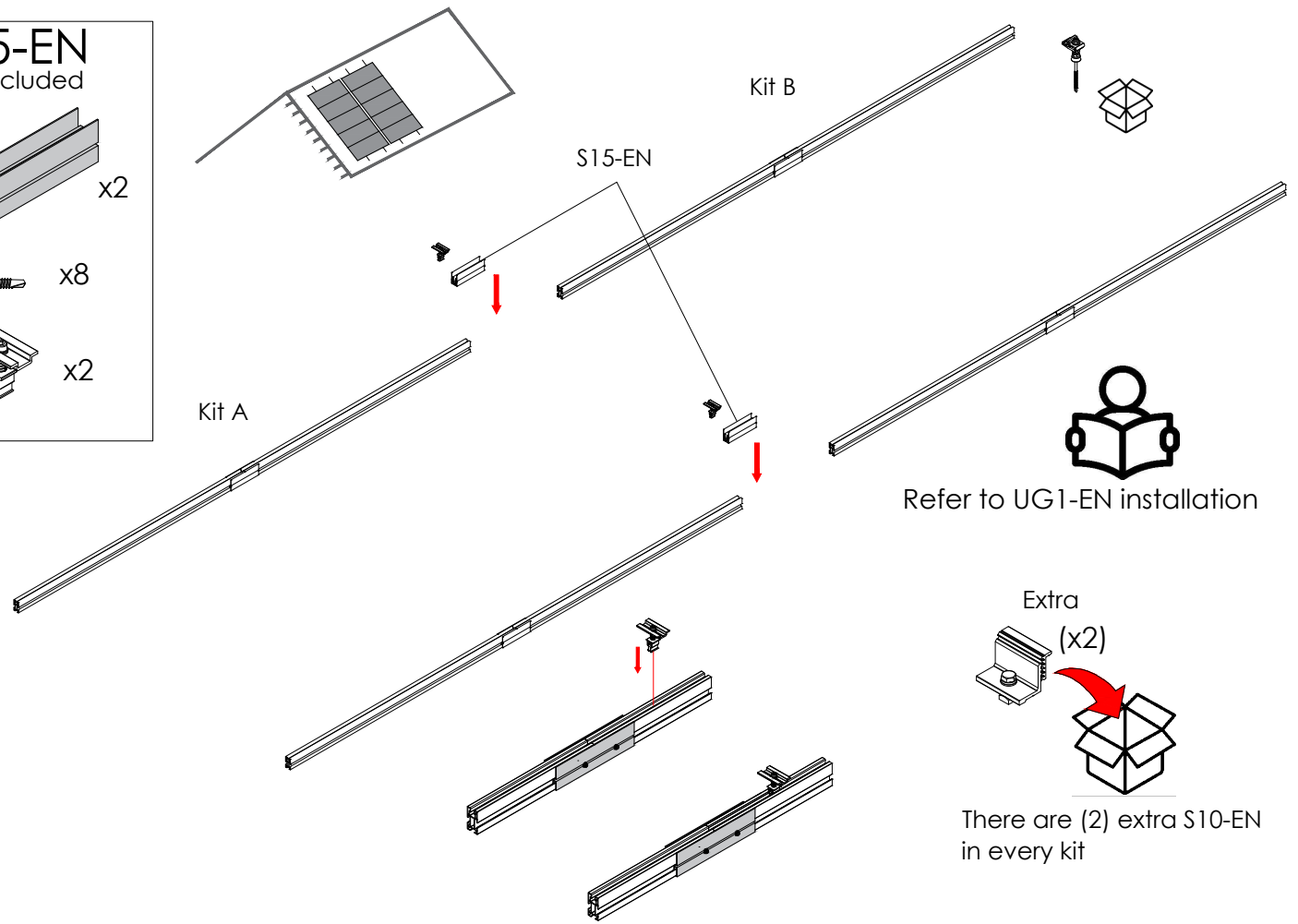


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S15-EN
 Not included

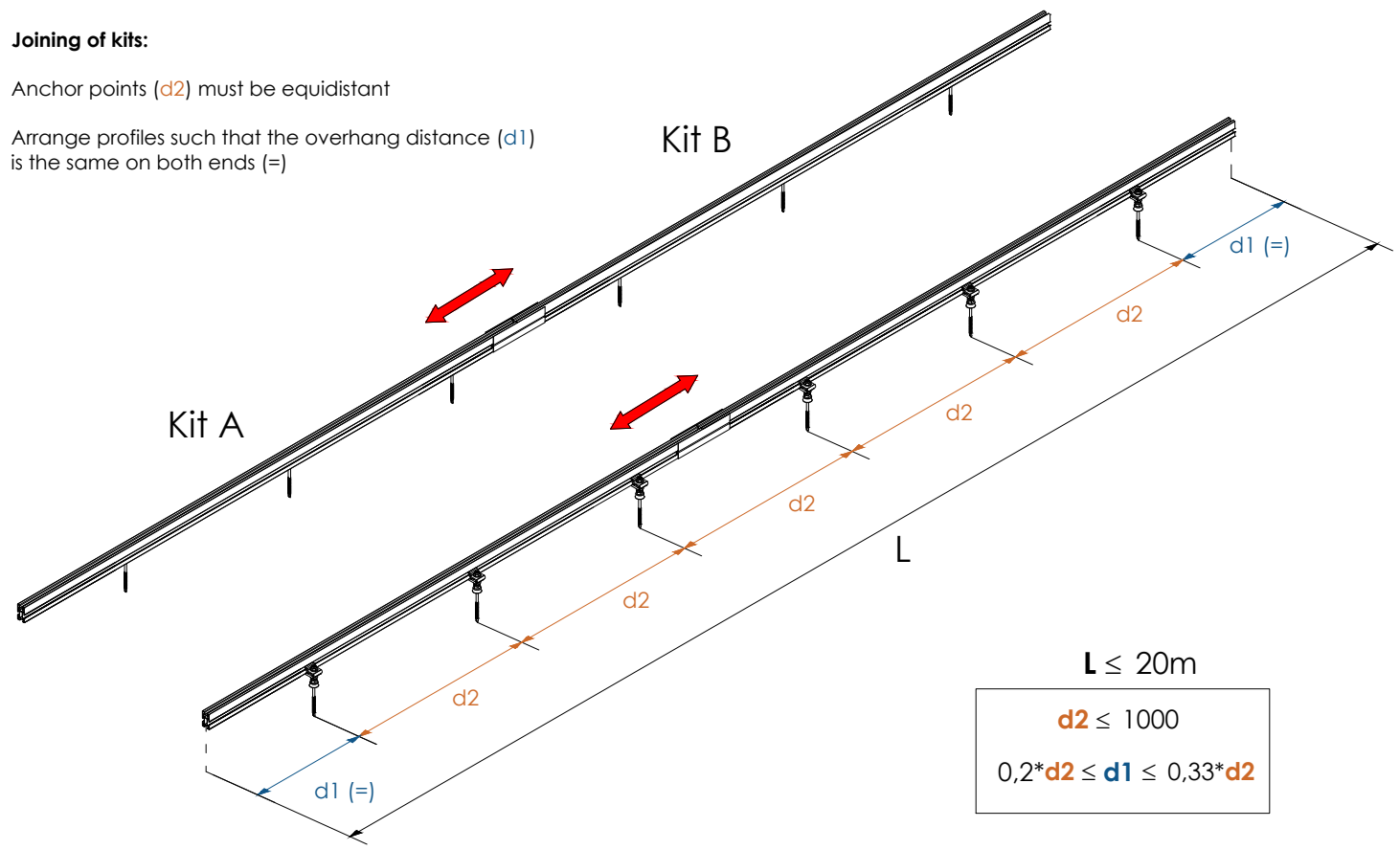
x2
 x8
 x2



Joining of kits:

Anchor points (d2) must be equidistant

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



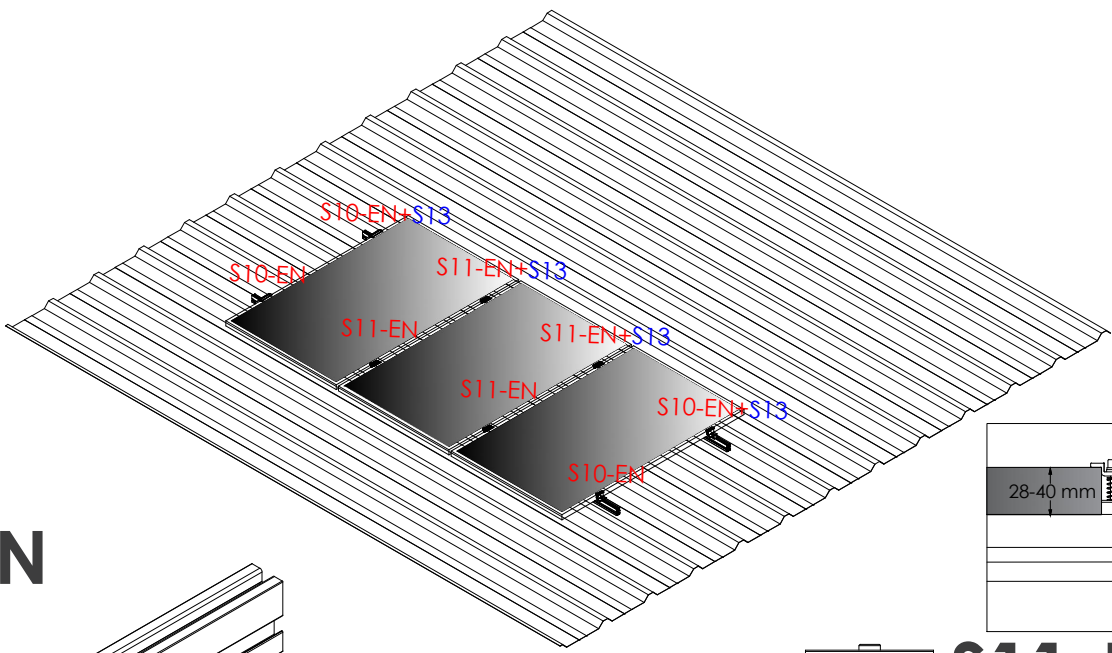
$L \leq 20m$

$d2 \leq 1000$

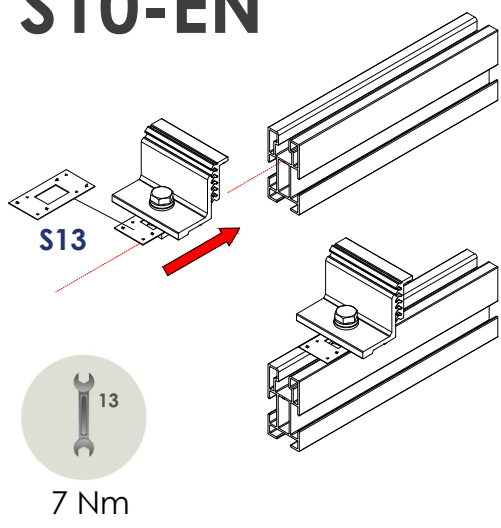
$0,2 * d2 \leq d1 \leq 0,33 * d2$

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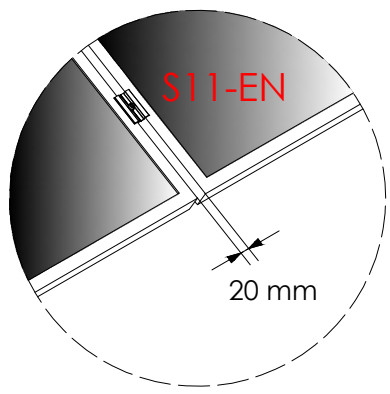
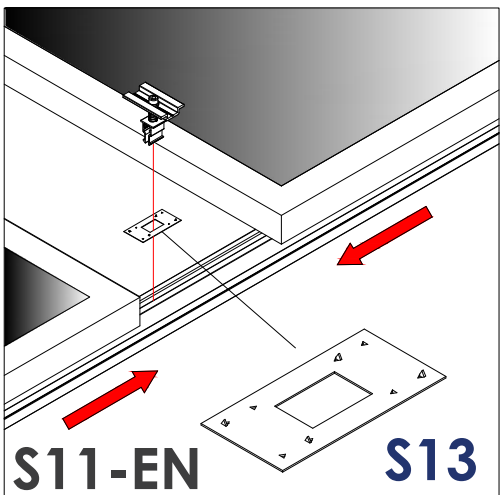
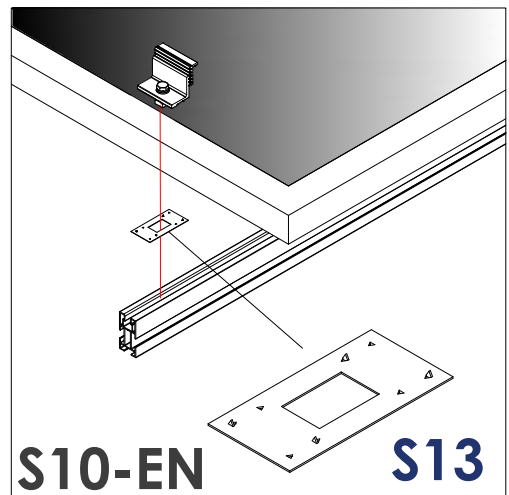
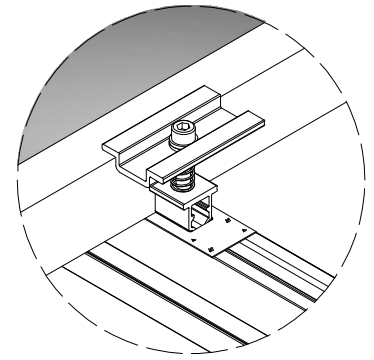
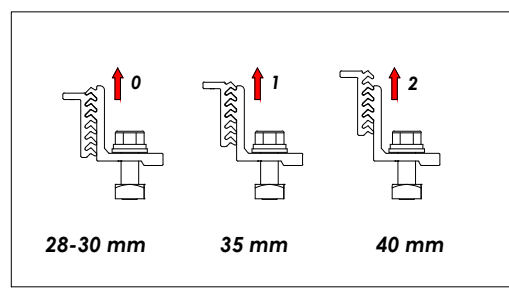
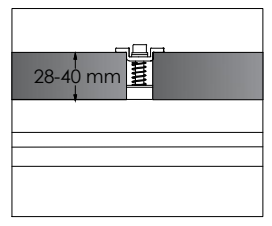
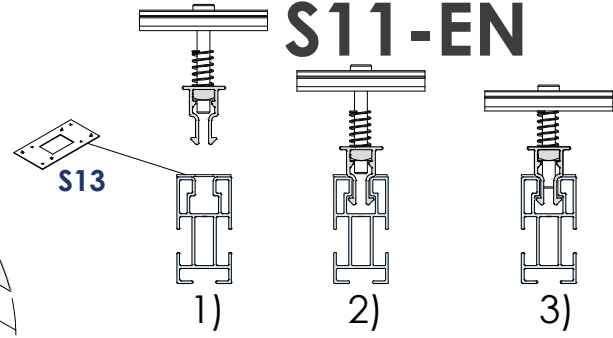




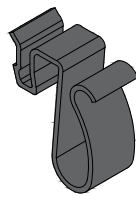
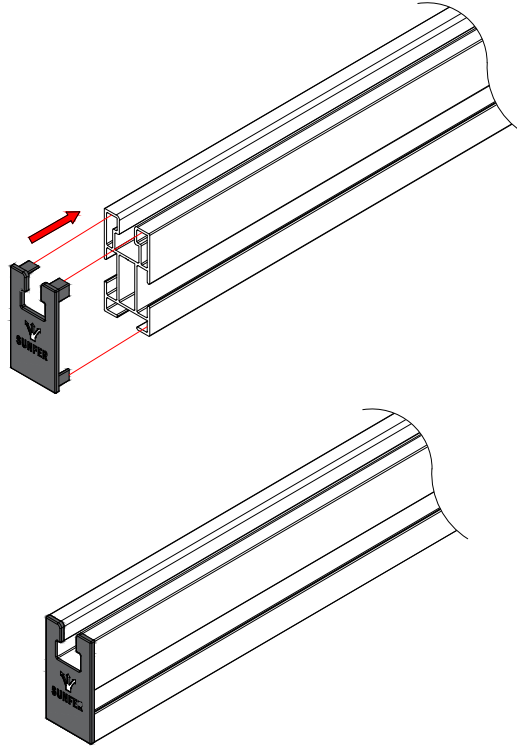
S10-EN



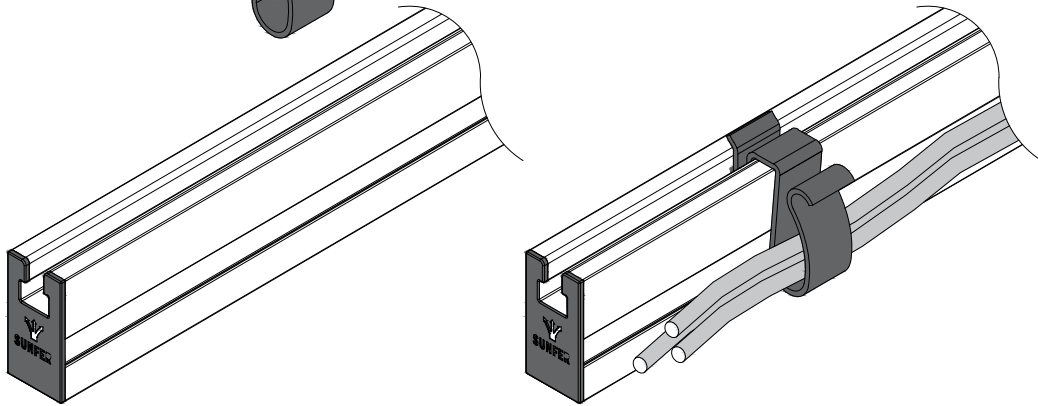
S11-EN



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Optional Cable Clip
(Not included)



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01.1V-EN S01.1-EN

Anchor Technical Information



Characteristics

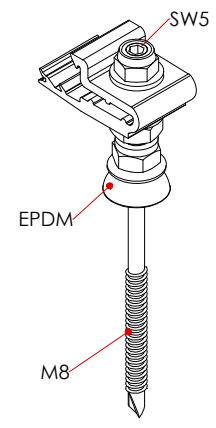
Internal Hexagonal (Allen) head.
A2-70 Stainless Steel.

Technical Specifications:

Bolt Length: 165 mm.
Bolt Diameter 8 mm.

Spin Speed for Installation

Max. 1300 rpm



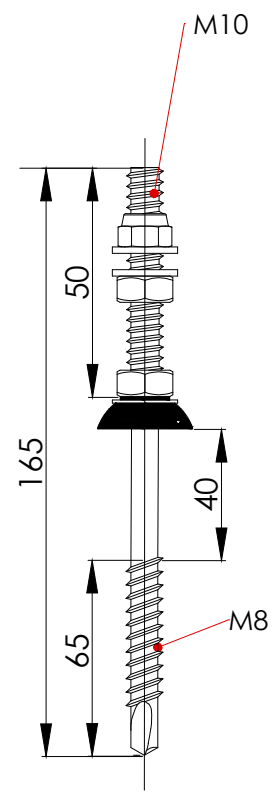
Strength Characteristics in Tension

	Substructure Thickness [mm]			
	1.5	2	3	≥4
N _{rk} [kN]	2.20	3.40	5.80	6.80

With thin-walled (≤2mm), asymmetrical substructures like C or Z profiles, the NRK characteristic values must be reduced by 30%.

Predrill Diameter

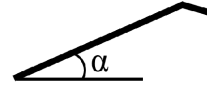
Ø (mm)	Substructure Thickness [mm]				
	1.5<3.0	3.0<5.0	5.0<7.5	7.5≥10	≥10
	No Predrill Needed	6.8	7.0	7.2	7.4



Description	Coplanar Support
Panel Arrangement	Landscape
Format	KIT of 1 to 4 panels
Joining Kit	S15-EN not included (optional)
Installation Surface	Sheetmetal
Anchoring Surface	Metal beam
Type of Fastening	Screwed
Fasteners	S01.1-EN
Profile	G1-EN
Grounding piece	S13
Maximum Panel Dimensions	2279x1150 mm
Allowable Panel Thickness	from 28 to 40 mm
Materials	Fasteners: A2-70 Stainless Steel Profiles: Raw or anodized EN AW 6005A T6 aluminium EPDM Weatherseal
Maximum Loads	According to Configuration
Structural Calculation	Computational models checked against EUROCODE 9 "Structures of Aluminium"

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Maximum admissible loads and their reactions



5° Pitch

10° Pitch

15° Pitch

20° Pitch

25° Pitch

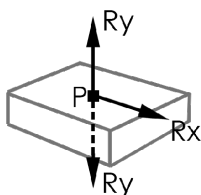
30° Pitch

35° Pitch

40° Pitch

Maximum Admissible Loads and Reactions					α 5°
Kit	Loads				
	(Km/h)	(Kg/m2)			
1	110	265	0.171	0.015	1.9875
	130	265	0.138	0.015	1.6301
	150	265	0.138	0.050	1.6466
	180	265	0.138	0.112	1.6758
	210	265	0.138	0.185	1.7103
	250	265	0.138	0.300	1.7646
2	110	153	0.205	0.030	2.4103
	130	189	0.202	0.030	2.4107
	150	186	0.199	0.100	2.4103
	180	180	0.193	0.224	2.4016
	210	174	0.188	0.371	2.4036
	250	164	0.178	0.601	2.4005
2 1R	110	205	0.206	0.016	2.4038
	130	254	0.204	0.016	2.4041
	150	251	0.201	0.054	2.4037
	180	246	0.198	0.121	2.4057
	210	240	0.193	0.200	2.4072
	250	230	0.186	0.325	2.4048
3	110	126	0.204	0.024	2.4164
	130	154	0.200	0.024	2.4003
	150	152	0.197	0.079	2.4130
	180	146	0.190	0.178	2.4027
	210	140	0.183	0.294	2.4051
	250	130	0.172	0.477	2.4014
3 1R	110	183	0.205	0.018	2.4062
	130	226	0.203	0.018	2.4018
	150	223	0.200	0.061	2.4014
	180	218	0.196	0.137	2.4035
	210	212	0.191	0.227	2.4052
	250	202	0.183	0.368	2.4025
4	110	95	0.202	0.036	2.4195
	130	116	0.198	0.036	2.4116
	150	113	0.193	0.121	2.4109
	180	108	0.186	0.271	2.4148
	210	101	0.176	0.447	2.4009
	250	92	0.162	0.726	2.4130
4 1R	110	122	0.203	0.022	2.4072
	130	150	0.200	0.022	2.4043
	150	147	0.196	0.075	2.4037
	180	142	0.190	0.167	2.4068
	210	136	0.183	0.276	2.4092
	250	126	0.171	0.448	2.4054
4 2R	110	170	0.205	0.019	2.4089
	130	210	0.203	0.019	2.4067
	150	207	0.200	0.064	2.4063
	180	202	0.196	0.144	2.4086
	210	195	0.189	0.237	2.4002
	250	186	0.181	0.385	2.4075

Table 1 - Maximum admissible loads and reactions.



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

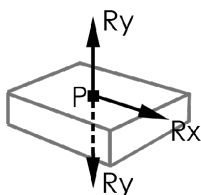


Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3. The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3. The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (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°
Kit	Loads				
	 (Km/h)	 (Kg/m2)			
 1	110	265	0.337	0.014	1.9442
	130	265	0.272	0.016	1.5952
	150	265	0.272	0.051	1.6117
	180	265	0.272	0.113	1.6410
	210	265	0.272	0.186	1.6755
	250	265	0.272	0.302	1.7298
 2	110	156	0.411	0.028	2.4003
	130	193	0.406	0.032	2.4040
	150	190	0.401	0.102	2.4043
	180	185	0.391	0.226	2.4081
	210	178	0.377	0.373	2.4007
	250	168	0.358	0.603	2.4001
 2 1R	110	210	0.414	0.015	2.4043
	130	260	0.410	0.017	2.4030
	150	257	0.406	0.055	2.4032
	180	252	0.398	0.122	2.4062
	210	245	0.388	0.201	2.4005
	250	235	0.373	0.326	2.4000
 3	110	129	0.411	0.022	2.4146
	130	158	0.403	0.025	2.4029
	150	155	0.396	0.081	2.4032
	180	150	0.384	0.179	2.4077
	210	144	0.371	0.296	2.4119
	250	134	0.348	0.478	2.4112
 3 1R	110	187	0.413	0.017	2.4011
	130	232	0.409	0.020	2.4066
	150	229	0.404	0.063	2.4069
	180	223	0.395	0.139	2.4008
	210	217	0.385	0.228	2.4038
	250	207	0.368	0.370	2.4033
 4	110	97	0.406	0.034	2.4115
	130	119	0.399	0.039	2.4130
	150	116	0.390	0.123	2.4134
	180	110	0.373	0.273	2.4027
	210	104	0.355	0.450	2.4080
	250	94	0.326	0.728	2.4071
 4 1R	110	125	0.409	0.021	2.4069
	130	154	0.403	0.024	2.4082
	150	151	0.396	0.076	2.4085
	180	146	0.384	0.169	2.4132
	210	139	0.368	0.278	2.4042
	250	129	0.345	0.450	2.4034
 4 2R	110	174	0.413	0.018	2.4072
	130	215	0.408	0.021	2.4057
	150	212	0.403	0.066	2.4059
	180	207	0.394	0.145	2.4094
	210	200	0.382	0.239	2.4027
	250	190	0.364	0.386	2.4021

Table 2 - Maximum admissible loads and reactions.



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

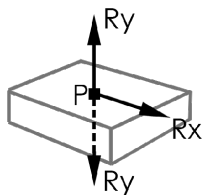


Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3. The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3. The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (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°
Kit	Loads				
	 (Km/h)	 (Kg/m2)			
 1	110	265	0.492	0.009	1.8995
	130	265	0.399	0.048	1.5745
	150	265	0.399	0.093	1.6031
	180	265	0.399	0.173	1.6535
	210	265	0.399	0.267	1.7132
	250	265	0.399	0.415	1.8070
 2	110	159	0.612	0.019	2.4066
	130	194	0.598	0.096	2.4030
	150	189	0.584	0.186	2.4076
	180	179	0.555	0.346	2.4034
	210	168	0.525	0.534	2.4071
	250	150	0.474	0.830	2.4056
 2 1R	110	215	0.620	0.010	2.4079
	130	264	0.609	0.052	2.4051
	150	258	0.596	0.101	2.4006
	180	249	0.577	0.187	2.4054
	210	237	0.551	0.288	2.4002
	250	220	0.514	0.448	2.4071
 3	110	130	0.606	0.015	2.4076
	130	158	0.590	0.076	2.4065
	150	153	0.573	0.148	2.4119
	180	143	0.540	0.274	2.4069
	210	132	0.503	0.423	2.4113
	250	114	0.443	0.658	2.4095
 3 1R	110	191	0.616	0.012	2.4041
	130	234	0.604	0.059	2.4010
	150	229	0.592	0.114	2.4049
	180	219	0.568	0.212	2.4013
	210	208	0.542	0.327	2.4045
	250	190	0.499	0.509	2.4031
 4	110	97	0.595	0.023	2.4078
	130	117	0.576	0.116	2.4103
	150	111	0.550	0.225	2.4013
	180	102	0.512	0.417	2.4109
	210	90	0.461	0.645	2.4006
	250	73	0.231	1.002	2.4141
 4 1R	110	126	0.603	0.014	2.4023
	130	153	0.587	0.072	2.4011
	150	148	0.570	0.139	2.4066
	180	138	0.536	0.258	2.4016
	210	127	0.498	0.398	2.4061
	250	109	0.436	0.619	2.4042
 4 2R	110	177	0.614	0.012	2.4045
	130	217	0.603	0.062	2.4060
	150	211	0.587	0.119	2.4006
	180	202	0.564	0.221	2.4064
	210	190	0.534	0.342	2.4002
	250	173	0.490	0.532	2.4083

Table 3 - Maximum admissible loads and reactions.



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



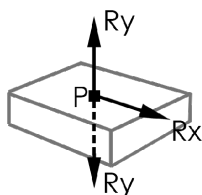
Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3. The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3. The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (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/>

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Maximum Admissible Loads and Reactions					20°	
		Loads		(kN/mount)	(kN/mount)	(kN/mount)
		(Km/h)	(Kg/m2)			
		110	265	0.634	0.012	1.8034
		130	265	0.514	0.050	1.4972
		150	265	0.514	0.095	1.5257
		180	265	0.514	0.175	1.5762
		210	265	0.514	0.269	1.6358
		250	265	0.514	0.417	1.7296
		110	168	0.829	0.024	2.4010
		130	206	0.814	0.101	2.4076
		150	200	0.792	0.191	2.4051
		180	190	0.756	0.350	2.4065
		210	178	0.712	0.539	2.4065
		250	159	0.643	0.835	2.4051
		110	227	0.840	0.013	2.4019
		130	265	0.787	0.054	2.2946
		150	265	0.787	0.103	2.3384
		180	263	0.782	0.189	2.4005
		210	251	0.748	0.291	2.4004
		250	233	0.698	0.451	2.4070
		110	138	0.824	0.019	2.4104
		130	167	0.799	0.080	2.4006
		150	162	0.778	0.151	2.4093
		180	152	0.735	0.278	2.4111
		210	140	0.683	0.427	2.4110
		250	121	0.601	0.662	2.4094
		110	202	0.836	0.014	2.4012
		130	248	0.821	0.062	2.4027
		150	242	0.803	0.117	2.4005
		180	232	0.772	0.215	2.4017
		210	220	0.735	0.330	2.4017
		250	201	0.677	0.512	2.4005
		110	103	0.809	0.028	2.4088
		130	124	0.781	0.122	2.4076
		150	118	0.749	0.231	2.4037
		180	108	0.694	0.423	2.4060
		210	96	0.628	0.650	2.4059
		250	77	0.311	1.008	2.4038
		110	134	0.822	0.018	2.4085
		130	163	0.801	0.075	2.4106
		150	157	0.775	0.142	2.4075
		180	147	0.731	0.261	2.4093
		210	135	0.678	0.402	2.4092
		250	116	0.594	0.623	2.4075
		110	188	0.837	0.015	2.4105
		130	230	0.819	0.065	2.4075
		150	224	0.799	0.122	2.4052
		180	214	0.767	0.224	2.4065
		210	202	0.727	0.345	2.4064
		250	183	0.664	0.535	2.4052

Table 4 - Maximum admissible loads and reactions.



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

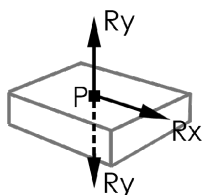


Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3. The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3. The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (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)			
	110	265	0.757	0.015	1.6849
	130	265	0.613	0.053	1.4017
	150	265	0.613	0.099	1.4303
	180	265	0.613	0.178	1.4807
	210	265	0.613	0.272	1.5404
	250	265	0.613	0.420	1.6342
	110	170	1.002	0.030	2.2712
	130	213	1.003	0.107	2.3224
	150	213	1.003	0.197	2.3795
	180	205	0.968	0.356	2.4065
	210	192	0.912	0.545	2.4055
	250	172	0.826	0.841	2.4080
	110	227	1.003	0.016	2.2455
	130	265	0.940	0.058	2.1483
	150	265	0.940	0.106	2.1921
	180	265	0.940	0.192	2.2694
	210	265	0.940	0.294	2.3608
	250	251	0.894	0.454	2.4053
	110	141	1.005	0.024	2.3008
	130	176	1.002	0.085	2.3535
	150	175	0.997	0.156	2.4103
	180	164	0.940	0.283	2.4094
	210	151	0.874	0.432	2.4082
	250	130	0.766	0.667	2.4002
	110	203	1.003	0.018	2.2560
	130	254	1.003	0.066	2.2976
	150	254	1.003	0.121	2.3461
	180	250	0.988	0.218	2.4005
	210	238	0.944	0.334	2.4075
	250	217	0.867	0.515	2.4018
	110	107	1.001	0.036	2.3328
	130	134	1.001	0.129	2.4068
	150	128	0.962	0.238	2.4092
	180	117	0.890	0.430	2.4079
	210	104	0.805	0.658	2.4065
	250	84	0.397	1.015	2.4103
	110	137	1.003	0.022	2.3005
	130	171	1.000	0.080	2.3545
	150	169	0.990	0.147	2.4015
	180	158	0.932	0.266	2.4004
	210	146	0.869	0.406	2.4105
	250	125	0.759	0.627	2.4024
	110	189	1.004	0.019	2.2661
	130	236	1.002	0.069	2.3064
	150	236	1.002	0.126	2.3584
	180	231	0.983	0.228	2.4081
	210	218	0.932	0.349	2.4072
	250	197	0.849	0.539	2.4011

Table 5 - Maximum admissible loads and reactions.



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



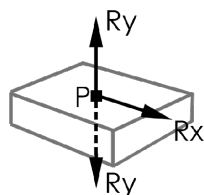
Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3. The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3. The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (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/>

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Maximum Admissible Loads and Reactions					30°
Kit	Loads				
	(Km/h)	(Kg/m2)			
1	110	265	0.858	0.025	1.5831
	130	265	0.696	0.003	1.3409
	150	265	0.696	0.022	1.3860
	180	265	0.696	0.066	1.4656
	210	265	0.696	0.118	1.5598
	250	265	0.696	0.201	1.7079
2	110	148	1.002	0.050	1.9309
	130	185	1.001	0.007	2.0060
	150	185	1.001	0.043	2.0962
	180	185	1.001	0.132	2.2555
	210	180	0.977	0.237	2.4016
	250	145	0.450	0.401	2.4022
2 1R	110	198	1.002	0.027	1.8842
	130	248	1.003	0.004	1.9450
	150	248	1.003	0.023	2.0141
	180	248	1.003	0.071	2.1362
	210	248	1.003	0.128	2.2806
	250	232	0.943	0.217	2.4039
3	110	122	1.003	0.039	1.9686
	130	153	1.004	0.005	2.0630
	150	153	1.004	0.034	2.1701
	180	153	1.004	0.105	2.3595
	210	135	0.900	0.188	2.4026
	250	100	0.405	0.318	2.4033
3 1R	110	177	1.003	0.030	1.9024
	130	221	1.001	0.004	1.9645
	150	221	1.001	0.027	2.0412
	180	221	1.001	0.081	2.1767
	210	221	1.001	0.145	2.3369
	250	195	0.893	0.246	2.4020
4	110	93	1.009	0.060	2.0417
	130	116	1.005	0.008	2.1521
	150	116	1.005	0.052	2.2884
	180	106	0.931	0.159	2.4017
	210	84	0.456	0.286	2.4055
	250	49	0.327	0.484	2.4063
4 1R	110	119	1.005	0.037	1.9780
	130	149	1.005	0.005	2.0721
	150	149	1.005	0.032	2.1818
	180	149	1.005	0.098	2.3758
	210	130	0.892	0.176	2.4097
	250	94	0.397	0.299	2.4001
4 2R	110	164	1.001	0.032	1.9103
	130	206	1.004	0.004	1.9864
	150	206	1.004	0.028	2.0684
	180	206	1.004	0.085	2.2134
	210	206	1.004	0.152	2.3847
	250	173	0.858	0.257	2.4006

Table 6 - Maximum admissible loads and reactions.



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



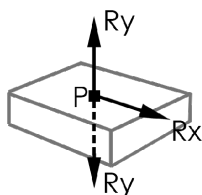
Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3. The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3. The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (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/>

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Maximum Admissible Loads and Reactions					35°	
	Loads		(kN/mount)	(kN/mount)	(kN/mount)	
	(Km/h)	(Kg/m2)				
1		110	265	0.787	0.021	1.2214
		130	265	0.640	0.001	1.0506
		150	265	0.640	0.026	1.0957
		180	265	0.640	0.070	1.1754
		210	265	0.640	0.123	1.2696
		250	265	0.640	0.205	1.4176
2		110	161	1.001	0.041	1.6241
		130	202	1.003	0.002	1.7046
		150	202	1.003	0.052	1.7947
		180	202	1.003	0.140	1.9540
		210	202	1.003	0.245	2.1424
		250	196	0.542	0.410	2.4008
2 1R		110	217	1.004	0.022	1.5824
		130	265	0.982	0.001	1.6103
		150	265	0.982	0.028	1.6793
		180	265	0.982	0.076	1.8014
		210	265	0.982	0.132	1.9458
		250	265	0.982	0.221	2.1727
3		110	133	1.006	0.033	1.6684
		130	166	1.003	0.001	1.7565
		150	166	1.003	0.041	1.8636
		180	166	1.003	0.111	2.0530
		210	166	1.003	0.194	2.2768
		250	136	0.487	0.325	2.4043
3 1R		110	193	1.001	0.025	1.5954
		130	242	1.003	0.001	1.6638
		150	242	1.003	0.032	1.7404
		180	242	1.003	0.086	1.8760
		210	242	1.003	0.150	2.0361
		250	242	1.003	0.251	2.2880
4		110	100	1.005	0.050	1.7298
		130	125	1.003	0.002	1.8443
		150	125	1.003	0.063	1.9806
		180	125	1.003	0.170	2.2216
		210	114	0.547	0.296	2.4016
		250	67	0.390	0.495	2.4019
4 1R		110	129	1.004	0.031	1.6707
		130	161	1.001	0.001	1.7609
		150	161	1.001	0.039	1.8706
		180	161	1.001	0.105	2.0646
		210	161	1.001	0.183	2.2939
		250	128	0.478	0.306	2.4015
4 2R		110	179	1.001	0.026	1.6065
		130	224	1.001	0.001	1.6768
		150	224	1.001	0.033	1.7588
		180	224	1.001	0.090	1.9037
		210	224	1.001	0.157	2.0751
		250	224	1.001	0.263	2.3445

Table 7 - Maximum admissible loads and reactions.



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



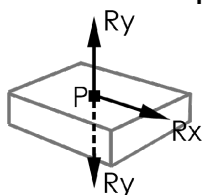
Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3. The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3. The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (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/>



Sunfer reserves the right to make changes at any time. All illustrations are for example only and may differ from actual products provided.

Maximum Admissible Loads and Reactions					40°
Kit	Loads				
	(Km/h)	(Kg/m2)			
 1	110	265	0.675	0.016	0.8954
	130	265	0.552	0.006	0.7850
	150	265	0.552	0.031	0.8271
	180	265	0.552	0.075	0.9014
	210	265	0.552	0.127	0.9893
	250	265	0.306	0.210	1.1275
 2	110	190	1.004	0.031	1.3778
	130	237	1.001	0.012	1.4466
	150	237	1.001	0.062	1.5308
	180	237	1.001	0.150	1.6795
	210	237	1.001	0.255	1.8553
	250	265	0.613	0.419	2.2551
 2 1R	110	256	1.003	0.017	1.3344
	130	265	0.846	0.006	1.2031
	150	265	0.846	0.033	1.2676
	180	265	0.846	0.081	1.3816
	210	265	0.846	0.138	1.5163
	250	265	0.469	0.226	1.7281
 3	110	155	1.001	0.025	1.4085
	130	194	1.001	0.009	1.4942
	150	194	1.001	0.049	1.5942
	180	194	1.001	0.119	1.7710
	210	200	1.027	0.202	2.0113
	250	212	0.612	0.333	2.4027
 3 1R	110	228	1.003	0.019	1.3497
	130	265	0.939	0.007	1.3351
	150	265	0.939	0.038	1.4067
	180	265	0.939	0.092	1.5332
	210	265	0.939	0.156	1.6827
	250	265	0.521	0.257	1.9177
 4	110	116	1.000	0.038	1.4672
	130	146	1.005	0.014	1.5813
	150	146	1.005	0.074	1.7085
	180	147	1.010	0.181	1.9400
	210	177	0.680	0.308	2.4057
	250	114	0.504	0.506	2.4040
 4 1R	110	151	1.002	0.023	1.4160
	130	189	1.002	0.009	1.5038
	150	189	1.002	0.046	1.6062
	180	189	1.002	0.112	1.7873
	210	200	1.052	0.190	2.0603
	250	201	0.602	0.313	2.4022
 4 2R	110	211	1.001	0.020	1.3587
	130	264	1.001	0.007	1.4243
	150	264	1.001	0.039	1.5009
	180	264	1.001	0.096	1.6362
	210	264	1.001	0.163	1.7961
	250	265	0.557	0.269	2.0516

Table 8 - Maximum admissible loads and reactions.



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



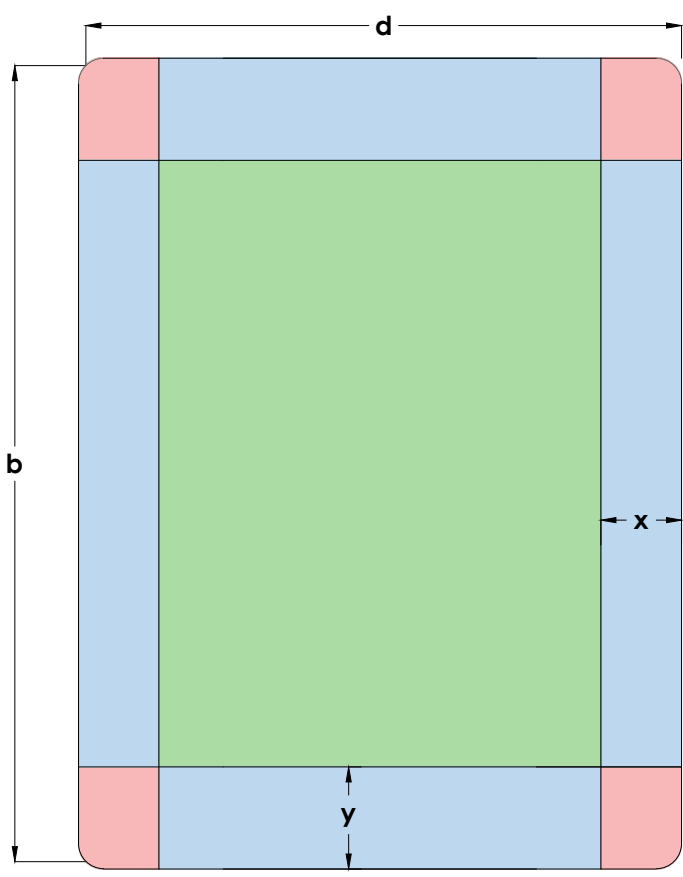
Characteristic snow load at ground level: The tabulated snow load is the characteristic snow load at ground level, which corresponds to a load value with an annual probability of being exceeded of 0.02, excluding exceptional snow actions, according to 1.6.1 EN1991-1-3. The characteristic value of the snow load on the roof is obtained according to Chapter 5 Section 5.2 Point 3a) of EN 1991-1-3. The thermal coefficient is considered to be equal to 1. The shape coefficient of the snow load is obtained from Chapter 5 Section 5.3.2 Point 2) Table 5.2 (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/>

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01.1V-EN

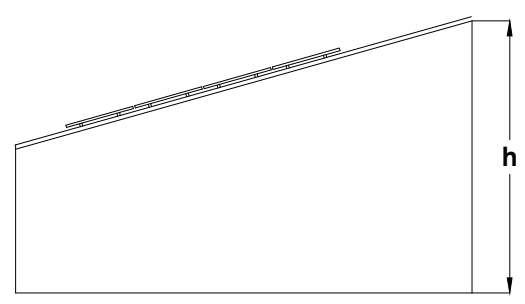
Installation Zone



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

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

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



- Installation Safe Zone
- Turbulence Zone
- Extreme Turbulence Zone

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

Sunfer reserves the right to make changes at any time. All illustrations are for example only and may differ from actual products provided.



01.1V-EN

Installation Video

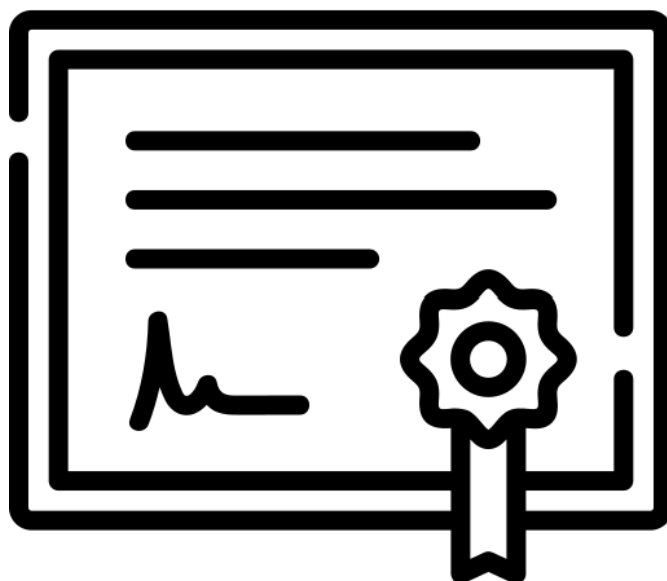


Sunfer reserves the right to make changes at any time. All illustrations are for example only and may differ from actual products provided.



01.1V-EN

Certificates and Guarantee



- ISO 9001 Certified
- ISO 14001 Certified
- CE Marking
- Guarantees

This is a translation of the certificate ES13/13899

The management system of

SUNFER ESTRUCTURAS, S.L.U.

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

has been assessed and certified as meeting the requirements of
ISO 9001:2015

For the following activities

Design, manufacture and sale of solar energy structures.

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

Issue 6. Certified with SGS since 8 April 2013

Last certificate expiry date 8 April 2022

Recertification audit date 31 March 2022

Authorised by

SGS International Certification Services Iberica, S.A.U.

C/Trespaderne, 29. 28042 Madrid. España

t +34 91 313 8115 - www.sgs.com



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This is a translation of the certificate ES22/211172

The management system of

SUNFER ESTRUCTURAS, S.L.U.

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

has been assessed and certified as meeting the requirements of

ISO 14001:2015

For the following activities

Design, manufacture and sale of solar energy structures.

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

Issue 2. Certified with SGS since 22 April 2022

Authorised by _____

SGS International Certification Services Iberica, S.A.U.

C/Trespaderne, 29. 28042 Madrid. España

t +34 91 313 8115 - www.sgs.com



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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:

01.1V-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*

	DECLARATION OF PERFORMANCE	DdP
		REVISION 01

DECLARATION OF PERFORMANCE NUMBER:	P-0115
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1. PRODUCT DESCRIPTION.

UNIQUE IDENTIFICATION CODE OF THE PRODUCT TYPE:	01.1V-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	See product data sheet	UNE EN 1999-1-1
- Carrying capacity	N/A	
- Fatigue resistance: N/A	N/A	
- Fire resistance: N/A	N/A	
- Manufacturing	According to the component specification. Execution class EXC1	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:



Structural and Anticorrosion Guarantee

All SUNFER mounting systems are manufactured under strict production control in our factory, as are our raw materials, which are periodically tested to ensure quality. It is for these reasons we are able to offer the following guarantee for our products:

25 year Structural Guarantee

Anticorrosion Guarantee per the below table

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

Table 1.

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

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

In these zones it is always necessary to utilize anodized aluminum if inside of the minimum safety radius indicated above.

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

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

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

This guarantee applies to orders supplied from 3rd January, 2023 on. Orders delivered before this date shall be governed by the guarantee that was in force at the time that the order was supplied.

The guarantee covers the final installation, and applies directly to the end user of the structure. Guarantees are managed between SUNFER and commercial distributors, so if an end user needs to invoke a guarantee, they must contact the distributor that supplied the material, and the distributor will coordinate with SUNFER Customer Service. The period of coverage of the guarantee begins upon the date that the delivery of the material is received by the end user, but will be repealed if the client does not comply with the payment terms stated in the invoice.

To invoke the guarantee, the following documentation must be produced:

- Sales invoice.
- Date system was put in service.
- Information of end user (name, address, distributor, etc).
- General photographs showing the entire system as installed.
- Installer's final work plans/drawings.
- Detailed photos of:
 - Fastening of the system to the roof, which shows the distance between mounting points.
 - The structure mounted without panels attached.
 - A rear view of the structure (from roof ridge if coplanar).





- Plan/drawing of the affected area which shows distances between mounting points.

Coverage and Exclusions

Coverage

This guarantee covers the replacement and shipping of the defective components or of the entire system if necessary, with no charge. In the case of a replacement not being available, a suitably similar replacement will be provided.

The guarantee is limited to replacement of defective products. The following costs, indirectly associated with the return process, will not be compensated: disassembly or any consequential, supplementary, or related damages, including lost profits or other indirect costs.

The guarantee covers all metallic elements included in a SUNFER structure.

Exclusions

Any issues or defects caused by or related to the following shall be excluded from the guarantee:

- Inadequate installations which did not follow the installation instructions provided by SUNFER.
- Incorrect fastener tightening torques (overtight or undertight).
- Modifications or installations other than those recommended by SUNFER.
- Installation of additional homemade or third-party elements to the structures supplied by SUNFER.
- Inadequate handling of products during the installation.
- Damage to the product after delivery, or from improper storage of the product.
- Any defect which is purely aesthetic in nature and which does not affect the structural safety of the product.
- Installations in areas whose wind and snow loads exceed those indicated in the datasheets of the product.
- Structures installed outside of the safe zone indicated in the installation manual.
- Inadequate maintenance. See the Maintenance Manual.
- Fires or exposure to temperatures above 110 °C.
- Problems or defects caused by corrosive agents not initially considered (1).
- Natural disasters such as earthquakes, hurricanes, floods, tornados, cyclones, mudslides, avalanches, or volcanic eruptions.

For structures not provided with a method of fastening to a surface, SUNFER denies responsibility in the event of collapse or failure due to insufficient fastening or poor installation.

Guarantor, Execution of guarantee

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

The entitlements afforded by this guarantee are non-transferable to third parties.

Regarding the guarantee and any disputes related to it, the law currently in force in Spain shall apply.



ES22/211172 ES13/13899

Marcado
ES19/86524 CE