PRODUCT DATA SHEET

Midsummer SLIM

Lightweight and flexible solar roofs for low-load-bearing structures, specially designed for standing seam metal roofs

The Midsummer SLIM ultralight, flexible thin-film solar panels are designed for standing seam metal roofs, combining efficiency with aesthetics to transform roofs into powerful energy sources. SLIM is ideal for low-load-bearing roofs, as it requires no structural reinforcements, frame, or ballast during installation. Roof penetration is not needed, as the solar panels are securely mounted using a double-sided adhesive which protects the roof's waterproofing layer. SLIM is compatible with flat, sloping, and vaulted designs and is suitable for commercial properties, industrial buildings, warehouses, sports arenas, apartment buildings, and residential properties.

Midsummer SLIM is 2 mm thin and is available in two variants:

- SLIM 2: 0.36 meter wide and 0.86 – 5.9 meters in length
- SLIM 3: 0.52 meter wide and 0.86 – 5.9 meters in length

For roofs longer than 6 meters, SLIM-Extended panels can be connected in series, extending up to 12 meters and increasing the installed power. The wiring is discreetly concealed under a cover, to maintain the roof's aesthetics. SLIM 3 is specifically designed to fit traditional Swedish metal roofs.

SLIM weighs just 2.8 kg/m^2, and its lightweight design enables it to cover 90% of the roof area, ensuring optimal energy production per square meter while fully utilizing the roof surface without exceeding the maximum load capacity.

SLIM can be retrofitted onto an existing roof or installed during roof replacement. Midsummer offers in-house manufactured metal plates tailored to maximize the surface area for SLIM 2 panels. Midsummer ensures fast, secure installations with turnkey solutions, providing full roof access as the panels are safe to walk on and require minimal maintenance. The solar panels are resistant to microcracks, withstand harsh weather, and protect the roof from UV damage. Bypass diodes for each cell enhance shading performance by isolating affected cells without impacting the entire panel.

Swedish innovation, manufactured in Stockholm, Sweden, and Bari, Italy

CSR AND SUSTAINABILITY

Midsummer ensures CSR-compliant sourcing - has full control over our value chain, from raw materials to final products, enabling full social responsibility across economic, environmental, and social dimensions.

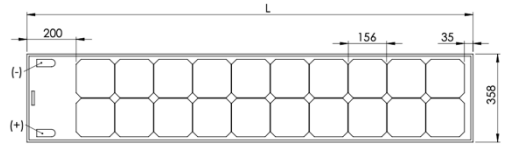
We provide the most sustainable energy solution with the lowest CO2 on the market, and 90% lower life cycle emissions compared to silicon panels.

Midsummer solar cells have **98% recyclability** and **contain 63% recycled material.**

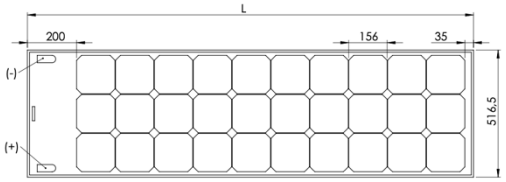
Highly efficient CIGS cells without toxic cadmium, due to our unique and innovative machinery, the Midsummer DUO system.

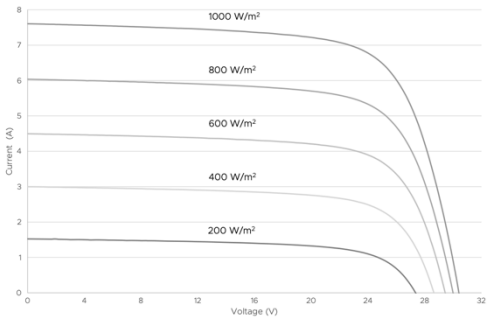
Technical Characteristics

SLIM 2



SLIM 3





ARTICLE INFORMATION	SLIM 2	SLIM 3
SLIM model	**SLIM 2x24**	**SLIM 3x24**
Number of cells (1 bypass diode between each cell)	**48**	**72**
Width	**358 ± 5 mm**	**516.5 ±5 mm**
Length	**4025 ±10 mm**	**4025 ±10 mm**
Weight	**2.8 kg/m2**	
Thickness	**2 mm**	
Roof pitch	**min 2°**	
Minimum bend radius	**0.25 m**	
Cell type thin film	**CIGS (Cu (In, Ga) Se_2)**	
Product warranty	**25 years**	
Power guarantee after 10 years	**90 %**	
Power guarantee after 25 years	**80 %**	
Certifications (TÜV Rheinland certified)	**IEC 61730, IEC 61215**	
Fire Safety	**BROOF (t2)*** **	
Color of the panel	**Black**	

TECHNICAL DATA	SLIM 2	SLIM 3
Nominal Power, P_{MAX}*	**165 W**	**245 W**
Power/m^2	**114.5 W/m²**	**117.8 W/m²**
Power/kg	**41.3 W/kg**	**42.2 W/kg**
Maximum Power Voltage, V_{MPP}	**25 V**	**36.4 V**
Maximum Power Current, I_{MPP}	**6.6 A**	**6.6 A**
Open Circuit Voltage, V_{OC}*	**30.4 V**	**45.6 V**
Short Circuit Current, I_{SC}*	**7.6 A**	**7.6 A**
Maximum Series Fuse Rating	**10 A**	
Maximum System Voltage, V_{DC}	**1000 V**	
Protection class against electrical shock	**II**	
Design Load**	**± 3600 Pa**	
Module operating range	**-40 to +85 °C**	
Temperature coefficient, P_{MAX} (W), γ	**-0.3992 % / °C**	
Temperature coefficient, V_{OC} (V), β	**-0.3279 % / °C**	
Temperature coefficient, I_{SC} (A), α	**0.0099 % / °C**	

* Testing performed at STC (Standard test conditions): solar radiation of 1000 W/m2 with perpendicular incidence towards the module surface, module temperature 25°C, Air mass 1.5 (AM 1.5 spectrum). The tolerance for the value is ±10%.
** Test load ± 5400 Pa, Max altitude: 2000 m
*** Classification has been carried out by RISE Research Institutes of Sweden AB in accordance with EN 13501-5:2016.

SLIM Models – electrical parameters for different sizes

SLIM 2

Panel dimension	Number of cells	Length (mm)	Extended Length (mm)	P_{MAX} (W)	V_{OC} (V)	I_{SC} (A)	V_{MPP} (V)	I_{MPP} (A)
2 x 10**	20	1813	1973	65	12,6	7,6	9,8	6,6
2 x 11	22	1971	2131	75	13,9	7,6	11,4	6,6
2 x 12	24	2129	2289	80	15,2	7,6	12,1	6,6
2 x 14	28	2445	2605	95	17,7	7,6	14,4	6,6
2 x 16	32	2761	2921	110	20,3	7,6	16,7	6,6
2 x 18	36	3077	3237	125	22,9	7,6	18,9	6,6
2 x 20	40	3393	3553	140	25,5	7,6	21,2	6,6
2 x 22	44	3709	3869	150	27,8	7,6	22,7	6,6
2 x 24	48	4025	4185	165	30,4	7,6	25,0	6,6
2 x 26	52	4341	4501	180	33,0	7,6	27,1	6,6
2 x 28	56	4657	4817	195	35,5	7,6	29,9	6,6
2 x 30	60	4973	5133	205	38,0	7,6	31,3	6,6
2 x 32	64	5289	5449	220	40,6	7,6	33,3	6,6
2 x 34	68	5605	5765	235	43,1	7,6	35,4	6,6
2 x 36	72	5921	6081	250	45,6	7,6	37,5	6,6

SLIM 3

Panel dimension	Number of cells	Length (mm)	Extended Length (mm)	P_{MAX} (W)	V_{OC} (V)	I_{SC} (A)	V_{MPP} (V)	I_{MPP} (A)
3 x 10**	30	1813	1973	100	19,0	7,6	15,2	6,6
3 x 11	33	1971	2131	110	20,9	7,6	16,7	6,6
3 x 12	36	2129	2289	120	22,8	7,6	18,2	6,6
3 x 14	42	2445	2605	140	26,6	7,6	21,2	6,6
3 x 16	48	2761	2921	165	30,4	7,6	24,3	6,6
3 x 18	54	3077	3237	185	34,2	7,6	27,3	6,6
3 x 20	60	3393	3553	205	38,0	7,6	30,3	6,6
3 x 22	66	3709	3869	225	41,8	7,6	33,4	6,6
3 x 24	72	4025	4185	245	45,6	7,6	36,4	6,6
3 x 26	78	4341	4501	265	49,5	7,6	39,4	6,6
3 x 28	84	4657	4817	290	53,3	7,6	42,5	6,6
3 x 30	90	4973	5133	310	57,1	7,6	45,5	6,6
3 x 32	96	5289	5449	330	60,9	7,6	48,5	6,6
3 x 34	102	5605	5765	350	64,7	7,6	51,5	6,6
3 x 36	108	5921	6081	375	68,5	7,6	54,6	6,6

** SLIM sizes lower than 1,8 m in length available on request

For roofs longer than 6 meters, SLIM-Extended panels can be connected in series, extending up to 12 meters and increasing the installed power. The wiring is discreetly concealed under a cover, to maintain the roof's aesthetics.