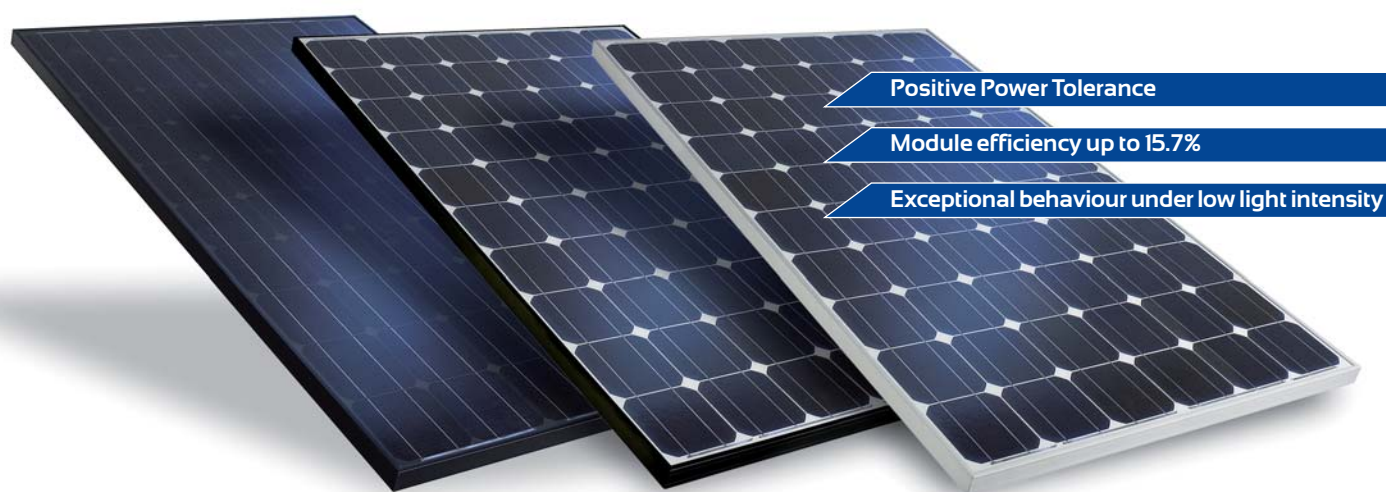
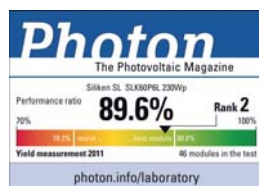
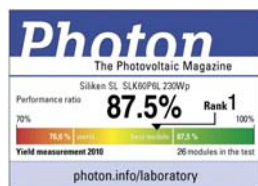


# Mono-Crystalline Solar Modules

From 150 to 305 Wp

From 36 to 72 cells

**siliken**



Positive Power Tolerance

Module efficiency up to 15.7%

Exceptional behaviour under low light intensity

## Why Siliken?

Siliken is a global company integrated in the value chain of the solar energy sector with the commitment and the determination to expand its activities to other renewable energy sectors, developing and implementing innovative programmes that guarantee top-notch power solutions and maximum performance for our customers.

**More than 500 MW  
installed in the  
Entire World**

With more than 500 MW installations in the world over, we have established a respectable brand, continuously offering a quality product with proven performance.

**Full Commitment  
to R&D**

Allows us to permanently cut costs and improve efficiency. Similarly, this enables us to improve our existing product suite and develop new technology.

**Production Process  
Key Automation**

We improve our production standards. Technology helps us control the most delicate operations with extreme precision, which provides our customers with maximum product guarantees in the manufacture of our products.

- Number 1 in the Photon Laboratory 2010 Survey <sup>(1)</sup>
- 10-year product guarantee
- 25-year linear power guarantee <sup>(2)</sup>
- Positive power tolerance <sup>(3)</sup>
- Module efficiency up to 15.7%
- Different versions of the module:
  - Silver Frame / White Backside Foil
  - Silver Frame / Transparent Backside Foil
  - Frameless / White Backside Foil
  - Frameless / Transparent Backside Foil
  - Black Frame / Black Backside Foil
- IEC61215 and IEC61730 certifications for worldwide application
- Exceptional behaviour under low light intensity
- More than 500 MW installed units endorse our modules
- Production process key automation
- Full commitment to R&D. We research and innovate constantly

<sup>(1)</sup> Model SLK60P6L

<sup>(2)</sup> Except model SLK36M6L

<sup>(3)</sup> Except model SLK36M6L  $\pm 5\%$

# Mono-Crystalline Solar Modules

From 150 to 305 Wp

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## Siliken Quality

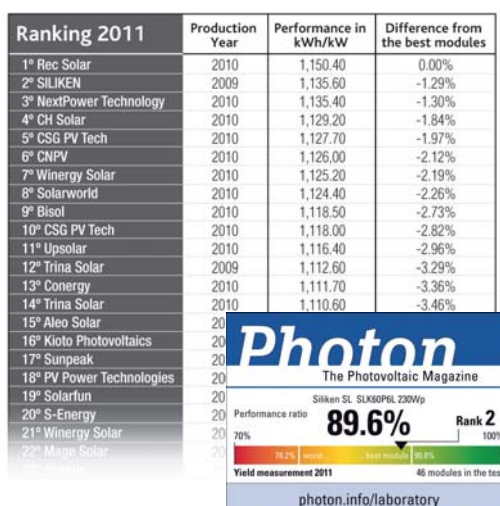
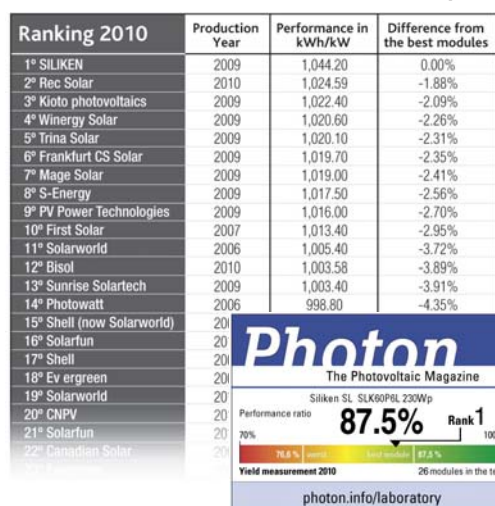
The results from the Photon laboratory are the confirmation that Siliken modules are the best quality modules.

The results from PHOTON Laboratory are the confirmation that SILIKEN maintains its high quality leading position during the last 2 years. The 1<sup>st</sup> position during 2010 and the 2<sup>nd</sup> during 2011 confirms that SILIKEN leads day by day the sector delivering quality, efficiency and results for energy production.

The Siliken module was the number one module in 2010; it generated 5.9% more power than the average value of all the modules studied and 12.4% more than the minimum value recorded.

The Siliken module has been the number two module in 2011; it generates 3.15% more power than average value of all the modules studied and 12.74% more than the minimum value recorded. Only 1.29% separate us from the first position.

### PHOTON'S YIELD MEASUREMENT: Real power is the decisive factor.



The Photon Test is currently the most recognized field performance test, comparing international solar modules over several years, during different seasons and with different light conditions.

In a comparative measurement, the yield of more than 130 module types is measured on PHOTON's outdoor test field.

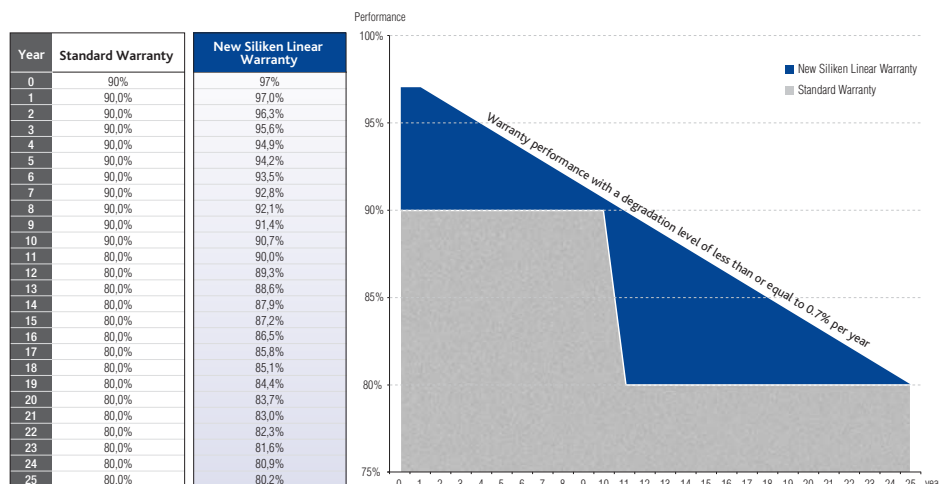
## 25 year Linear Power Warranty



Purchasing Siliken modules is nothing short of a safe bet, thanks to both their efficiency and their safety.

Siliken's linear warranty ensures maximum power of its modules for 25 years. Such a guarantee is only provided by a very small number of manufacturing companies worldwide. The reliability, robustness and efficiency of our modules allow Siliken to offer this linear warranty.

This guarantee ensures a 97% performance level for the module during the first year. From the second year through to the 25<sup>th</sup> year the performance of the module is guaranteed with a degradation level of less than or equal to 0.7% per year.



### PRODUCT WARRANTY

10 year limited warranty on materials and workmanship

### 25 YEAR LINEAR POWER WARRANTY

Year 1: 97% of rated output

Years 2-25: 0.7% p.y. reduction

Mono-Crystalline Solar Modules

SLK36M6L 150 Wp	SLK50M6L 190 - 210 Wp	SLK72M6L 280 - 305 Wp
SLK48M6L 180 - 200 Wp	SLK60M6L 235 - 255 Wp	

siliken

ELECTRICAL SPECIFICATIONS										
MODELS	VERSIONS Frame / Backside foil	Power Tolerance %	Maximum Power to STC / NOCT P <sub>mp</sub> (Wp)	Efficiency to STC η (%)	Filling Factor FF	Maximum Voltage to STC / NOCT V <sub>mp</sub> (V)	Maximum Current to STC / NOCT I <sub>mp</sub> (A)	Open Circuit Voltage to STC / NOCT V <sub>oc</sub> (V)	Current to STC / NOCT I <sub>sc</sub> (A)	Standard Operational Cell Temperature NOCT (°C) / (°F)
SLK36M6L	Silver / White	+/- 5%	150 / 109.7	15.0 %	0.764	18.25 / 16.60	8.22 / 6.61	22.3 / 20.3	8.81 / 7.14	46±2 / 114.8±3.6
SLK48M6L	Silver / White Silver / Transparent Frameless** / White Frameless** / Transparent	+3/0%	200 / 146.2	15.2%	0.744	23.95 / 21.79	8.35 / 6.71	30.1 / 27.4	8.93 / 7.24	46±2 / 114.8±3.6
			190 / 138.9	14.5%	0.725	23.11 / 21.03	8.22 / 6.61	29.7 / 27.0	8.81 / 7.14	
	Black / Black		180* / 131.6	13.7%	0.709	22.33 / 20.31	8.06 / 6.48	29.3 / 26.6	8.68 / 7.03	47±2 / 116.6±3.6
			190 / 138.3	14.5%	0.725	23.11 / 20.94	8.22 / 6.60	29.7 / 26.9	8.81 / 7.14	
			180* / 131.0	13.7%	0.709	22.33 / 20.23	8.06 / 6.47	29.3 / 26.5	8.68 / 7.04	
SLK50M6L	Silver / White Frameless** / White		210* / 153.5	15.4%	0.745	24.91 / 22.66	8.43 / 6.78	31.4 / 28.5	8.98 / 7.28	46±2 / 114.8±3.6
			200 / 146.2	14.7%	0.733	24.36 / 22.16	8.21 / 6.60	31.0 / 28.2	8.81 / 7.14	
	Black / Black		190* / 138.9	14.0%	0.713	23.78 / 21.63	7.99 / 6.42	30.5 / 27.7	8.74 / 7.08	47±2 / 116.6±3.6
			200 / 145.6	14.7%	0.733	24.36 / 22.07	8.21 / 6.60	31.0 / 28.1	8.81 / 7.14	
			190 / 138.3	14.0%	0.706	23.78 / 21.55	7.99 / 6.42	30.5 / 27.6	8.74 / 7.09	
SLK60M6L	Silver / White Silver / Transparent Frameless** / White Frameless** / Transparent		255* / 186.9	15.7 %	0.750	30.46 / 27.74	8.39 / 6.74	37.9 / 34.5	8.97 / 7.27	46±2 / 114.8±3.6
			250 / 183.6	15.4 %	0.746	30.15 / 27.45	8.33 / 6.69	37.7 / 34.3	8.91 / 7.22	
			245 / 180.0	15.1 %	0.743	29.90 / 27.22	8.23 / 6.61	37.4 / 34.0	8.82 / 7.15	47±2 / 116.6±3.6
			240 / 177.3	14.8 %	0.734	29.57 / 26.92	8.20 / 6.59	37.2 / 33.8	8.79 / 7.13	
			235 / 173.8	14.5%	0.730	29.26 / 26.64	8.13 / 6.53	36.9 / 33.6	8.73 / 7.07	
	Black / Black		250* / 182.7	15.4 %	0.746	30.15 / 27.35	8.33 / 6.68	37.7 / 34.1	8.91 / 7.22	47±2 / 116.6±3.6
			245 / 179.2	15.1 %	0.743	29.90 / 27.12	8.23 / 6.61	37.4 / 33.9	8.82 / 7.15	
			240 / 176.5	14.8 %	0.734	29.57 / 26.81	8.20 / 6.58	37.2 / 33.7	8.79 / 7.13	46±2 / 114.8±3.6
			235* / 173.1	14.5 %	0.730	29.26 / 26.53	8.13 / 6.52	36.9 / 33.5	8.73 / 7.08	
SLK72M6L	Silver / White Silver / Transparent		305* / 223.0	15.7 %	0.759	36.97 / 33.66	8.25 / 6.63	45.4 / 41.3	8.85 / 7.17	46±2 / 114.8±3.6
			300 / 219.3	15.5 %	0.754	36.50 / 33.23	8.22 / 6.60	45.1 / 41.1	8.82 / 7.15	
			295 / 215.7	15.2 %	0.748	35.98 / 32.75	8.20 / 6.58	44.9 / 40.8	8.79 / 7.12	47±2 / 116.6±3.6
			290 / 212.0	14.9 %	0.742	35.45 / 32.28	8.18 / 6.57	44.6 / 40.6	8.76 / 7.10	
			285* / 208.4	14.7%	0.736	34.93 / 31.80	8.16 / 6.55	44.3 / 40.4	8.73 / 7.07	47±2 / 116.6±3.6
			300* / 218.4	15.5 %	0.754	36.50 / 33.10	8.22 / 6.60	45.1 / 40.9	8.82 / 7.15	
	Black / Black		295 / 214.7	15.2 %	0.748	35.98 / 32.63	8.20 / 6.58	44.9 / 40.7	8.79 / 7.13	46±2 / 114.8±3.6
			290 / 211.1	14.9 %	0.742	35.45 / 32.15	8.18 / 6.56	44.6 / 40.4	8.76 / 7.10	
			285 / 207.4	14.7%	0.736	34.93 / 31.68	8.16 / 6.55	44.3 / 40.2	8.73 / 7.08	47±2 / 116.6±3.6
			280* / 203.8	14.4%	0.730	34.40 / 31.20	8.14 / 6.53	44.1 / 40.0	8.70 / 7.05	

\*Subject to availability.

\*\* These modules have passed the tests in accordance with IEC 61215:2005 and IEC61730:2004, except for the Mechanical Load Test 10.16, which depends on the structure used for mounting the modules.

Data regarding standard STC test conditions: Radiation of 1,000 W/m² (92.94 W/ft²), with spectrum AM 1.5 and cell temperature of 25°C (77°F) / Data regarding standard NOCT test conditions: Radiation of 800W/m² (74.32 W/ft²), with spectrum AM 1.5, average wind velocity 1m/s and air temperature of 20°C (68°F).

**Note:** Siliken PV modules have been tested in accordance with the test procedures in Standard EN (IEC) 61730-1 and -2:2007 MST 26 Reversed Current Overload Test at 20.25A (I<sub>rr</sub>=15A).

**Note:** Protective fuses are calculated based on the dimensional criteria I<sub>sc</sub> x 1.25 for Europe and I<sub>sc</sub> x 1.25 x 1.25 for USA and Canada. Fuses are not included in the module.

Please see the electrical standards of each country to determine the correct fuse size for the PV installation.

P<sub>max</sub> measurement tolerances +/- 3%.

MECHANICAL AND THERMAL SPECIFICATIONS									
MODELS	Dimensions L x W x D mm / inches	Weight Kg / lbs	Connector type / Output cables	Frame	Mono-Crystalline Solar Cells	Maximum Voltage UL / IEC V <sub>max</sub> (V) UL/IEC	P <sub>mp</sub> T <sub>p</sub> P <sub>mp</sub> Coefficient Temperature (%/°C)	V <sub>oc</sub> T <sub>v</sub> V <sub>oc</sub> Coefficient Temperature (%/°C)	I <sub>sc</sub> T <sub>i</sub> I <sub>sc</sub> Coefficient Temperature (%/°C)
SLK36M6L	1,490 x 673 x 40 / 58.66 x 26.5 x 1.57	12 / 26.45	MC4 connector type. / Length of symmetrical cables is 1m (39.37"), Ø4 (0.157"Ø) mm², double insulation layer, halide free, UV radiation resistant. Module SLK72M6L has a cable length of 1.26 metres (49.61 inches).	Hollow section of 15 microns thick anodised aluminium, type 6063 T5, with drainage and grounding perforations.  Models SLK60M6L and SLK72M6L furthermore includes another hole of 8 mm Ø / 0.314" Ø that can be used to guide the security wire.	36 cells 156 x 156 mm 36 cells 6 x 6 in	600/1,000	-0.41	-0.356	0.062
SLK48M6L	1,325 x 990 x 40 / 52.16 x 38.98 x 1.57 1,320 x 984 x 5 / 51.97 x 38.74 x 0.20*	15 / 33.06 13 / 28.66*			48 cells 156 x 156 mm 48 cells 6 x 6 in				
SLK50M6L	1,640 x 830 x 40 / 64.57 x 32.68 x 1.57 1,634 x 824 x 5 / 64.33 x 32.44 x 0.20*	16 / 35.27 14 / 30.86*			50 cells 156 x 156 mm 50 cells 6 x 6 in				
SLK60M6L	1,640 x 990 x 40 / 64.57 x 38.98 x 1.57 1,634 x 984 x 5 / 64.33 x 38.74 x 0.20*	19 / 41.9 17 / 37.48*			60 cells 156 x 156 mm 60 cells 6 x 6 in				
SLK72M6L	1,960 x 990 x 40 / 77.16 x 38.98 x 1.57	23 / 50.71			72 cells 156 x 156 mm 72 cells 6 x 6 in				

**Connection Box:** Minimum IP-65 with 3 protection bypass diodes 12A/40V.

**Front glass:** Toughened glass of 3.2 mm / 0.125 inches with low iron content and high transmission capacity.

\* Measures and weight for frameless module.

CONSTRUCTIVE CHARACTERISTICS

1 JUNCTION BOX

2 BACKSIDE FOIL

3 EVA

4 MONO-CRYSTALLINE CELLS

5 EVA

6 GLASS PLATE

7 FRAME

CONSTRUCTIVE CHARACTERISTICS BLACK MODULE

1 JUNCTION BOX

2 BLACK BACKSIDE FOIL

3 EVA

4 MONO-CRYSTALLINE CELLS

5 EVA

6 GLASS PLATE

7 ANODIZED BLACK FRAME

# Mono-Crystalline Solar Modules

SLK36M6L 150 Wp

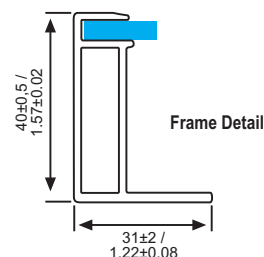
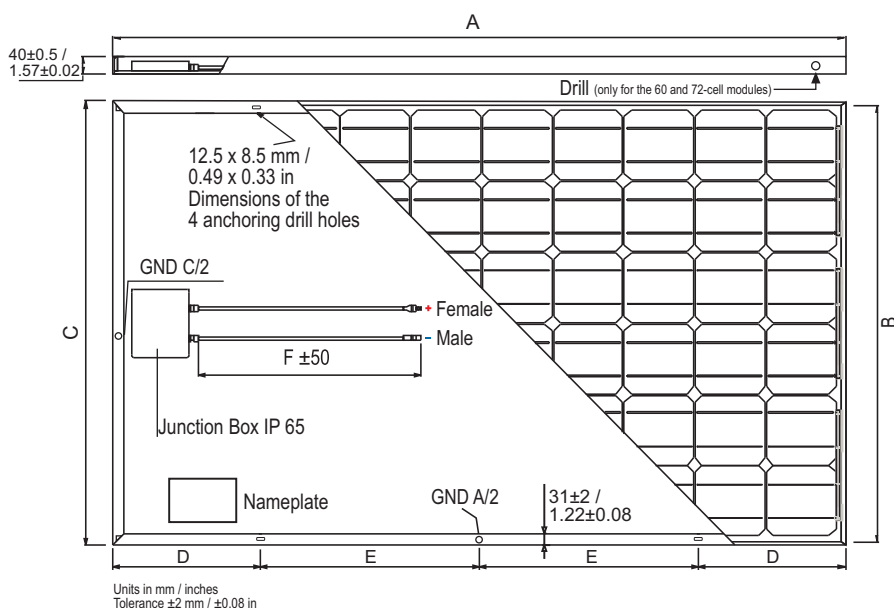
SLK50M6L 190 - 210 Wp

SLK72M6L 280 - 305 Wp

SLK48M6L 180 - 200 Wp

SLK60M6L 235 - 255 Wp

**siliken**



## LIGHT INTENSITY DEPENDENCE

Intensity W/m <sup>2</sup>	V <sub>mp</sub>	I <sub>mp</sub>
1000	1.000	1.000
800	0.994	0.801
600	0.988	0.597
200	0.951	0.199
100	0.918	0.093

\* Light intensity correlation factors of the voltage and current.

## DIMENSIONS

MODELS	A	B	C	D	E	F
SLK36M6L	1,490/58.66	633/24.92	673/26.5	304/11.97	441/17.36	1,000/39.37
SLK48M6L	1,325/52.16	950/37.40	990/38.98	270/10.63	392.5/14.45	1,000/39.37
SLK48M6L frameless	1,320/51.97	944/37.16	984/38.74	-	-	1,000/39.37
SLK50M6L	1,640/64.57	790/31.10	830/32.68	330/12.99	490/19.29	1,000/39.37
SLK50M6L frameless	1,634/64.33	784/30.87	824/32.44	-	-	1,000/39.37
SLK60M6L	1,640/64.57	950/37.40	990/38.98	330/12.99	490/19.29	1,000/39.37
SLK60M6L frameless	1,634/64.33	944/37.16	984/38.74	330/12.99	490/19.29	1,000/39.37
SLK72M6L	1,960/77.16	950/37.40	990/38.98	390/15.35	590/23.22	1,260/49.61

Units in mm / inches

## TESTED OPERATING CONDITIONS

Temperature Range	-40 °C to +85 °C (-40°F to +185°F)
Static Load	2400 Pa (50 psf)
Max Load	5400 Pa (112.8 psf)
Impact Resistance	Hailstone impact Ø25 mm at 83 Km/h (Ø1 in at 52 mph)

## CERTIFICATIONS

	TÜV Certificate	IEC 61215 / IEC 61730 / IEC 61701 Salt Mist Corrosion	Certifies that our PV modules fit the standards of IEC61215 PV module manufacturing and the IEC61730 PV module safety standard.
	ISO 9001:2000	No. ES08/5170	The organisation works with a Quality Management policy which is certified in accordance with the ISO 9001 No. ES08/5170 Standard.
	ISO 14001	No. ES09/6520	The organisation works with an Environmental Management policy which is certified in accordance with the ISO 14001 No. ES09/6520 Standard.
	OHSAS 18001: 2007	No. ES12/11906	The organisation applies occupational safety and health management in accordance with the OHSAS 18001 No. ES12/11906 norm. (*)
	PV Cycle Member		Collection and recycling of end-of-life PV modules practically reducing its environmental footprint to zero.
	Declaration of Conformity CE (CE Marking)		Guarantees that our products are suitable for the European market.
	MCS United Kingdom		Guarantees that PV modules are suitable for any PV installation in the United Kingdom.
	Clean Energy Council		Qualification listing the design and/or installation competences of stand-alone and/or PV solar systems under the Australian regulation.
	KIWA / IEC 62716		Ammonia Resistance.
	ISRAEL ELECTRIC CORPORATION, LTD		Guarantees that PV modules are suitable for any PV installation in Israel.
	Fire Resistance	Class C	Certifies the fireproof capacity of the rooftop installations exposed to simulated fire.

NOTE: Confirm available certificates for each of the modules.

WARNING: Please read the User Guide carefully before using the product. NOTE: Due to our policy of continuous improvement, Siliken Manufacturing, S.L.U. reserves the right to modify this product without prior notification.

(\*) The scope of the certification covers the Siliken Manufacturing, S.L.U. Business Unit including the design, manufacture, distribution and after-sales services of PV modules in work centers in Spain and Romania.