



Manufacturing of high-quality crystalline Solar Modules

- **Made of Sweden. Engineering by Swemodule AB.**
- **Optimized to produce more kWh per year than any other module.**
- **The most automatized PV manufacturing site in Europe.**
- **Employees with long experience in PV-module R&D and manufacturing.**



Description of module

- Solar Modules produced by Windon AB are designed for various markets and applications. High quality production, combined with strictest process control, ensure maximum lifespan and the highest performance.
- The robust construction is resistant to heavy wind and snow load.
- Special low iron glass with an antireflection treated surface achieves up to 2 % higher measured output power, however the modules gives 5-8% higher energy yield performance in the field during scattered and low light conditions, especially in morning, evening and in the winter months.
- High performance EVA, extremely stable cross-linking, will stay transparent and maintain the high energy yield over long period of time.
- All joints soldered or welded in Junction Box, to prevent contact corrosion an arcing.

Produkt portfolio

- **Mbili** Aluminium frame, white back sheet
- **Tatu** Black Frame, White back sheet
- **Moja** Black Frame, black back sheet



Production Site

Modern machines, stable processes and own module Design and Development, gives a unique position to meet customer expectations. The staff is accustomed to the plant and very experienced. Current capacity of 30 MW per year.



Automation

Automated to the highest level, thereby securing outstanding quality and module performance.

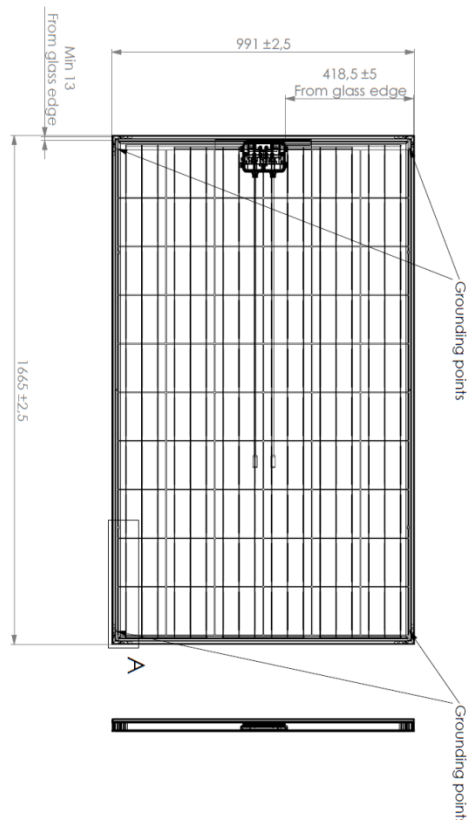


Quality control

The production site allocates its own test equipment, to ensure the high quality of the manufactured modules. Each module is measured and visually inspected. Furthermore new module design and new components can be long term tested in own laboratory.

General Data

Module power:	240 - 275 Wp
Dimensions (L x W x H):	1665 x 991 x 35 mm
Module area:	1,65 m ²
Weight:	19 Kg
Cell type:	156 x 156 mm crystalline
Maximum system Voltage:	1000V
Number of cells:	60 pcs.
Cells per bypass diode:	20 pcs.
Number of bypass diodes:	3 pcs.
Number of Bus bars:	3
Front cover:	High transparency low iron solar glass with antireflection surface treatment. AR-glass
Front cover thicknesses:	3,2 mm
Junction-box:	Kostal (with 1,0 m cable and MC4 connectors), IP65 rating (flush safe).
Frame:	Anodized aluminum
Manufacturer:	Europe Solar Production, Poland



Electrical data

Bypass diode rating:	12 (A)	Nominal operation cell temperature (NOCT):	47,5 (°C)
Maximum series fuse:	12 (A)	Temperature coefficient of Pmpp:	-0,382 (% / K)
Limiting reverse current :	20 (A)	Temperature coefficient of Voc:	-0,320 (% / K)
Series resistance of module:	305 (mΩ)	Temperature coefficient of Isc:	0,077 (% / K)

Temperature ratings (measured at TÜV)

Elektrik Data / Modultyp	Mult-crystalline cells					Mono-crystalline cells		
	240	245	250	255	260	265	270	275
Nominal Power (P mpp)	240	245	250	255	260	265	270	275
Power sorting from nominal (Wp)	0-5							
Maximum power voltage V mpp (V)	29,8	30	30,3	30,6	30,9	31,2	31,5	31,8
Maximum power current I mpp (A)	8,1	8,2	8,2	8,3	8,3	8,4	8,4	8,5
Open circuit voltage V oc (V)	37,1	37,5	37,7	38	38,3	38,6	38,9	39,1
Short circuit current I sc (I)	8,6	8,7	8,8	8,8	8,9	8,9	9	9
Cell efficiency (%)	16,4	16,8	17,1	17,4	17,8	18,1	18,4	18,7
Fill Factor	0,75	0,75	0,75	0,76	0,77	0,78	0,78	0,79
Power output tolerance P mpp (%)	+/- 5%							

Warranty condition

15 years materials and workmanship.

25 years linear module power output warranty, down to 80% . The minimum value first year is 97%.

50 years energy generating

Certifikat

TUV Factory Inspection, MCS

