

PREMIUM

BISOL Laminate

Monocrystalline PV Laminates / BBO 450-460 Wp



Designed & manufactured in EU



Strictly positive output power tolerances



PID free



Ideal for integration



Module presorting for higher profitability



Supremely low degradation



Module efficiency up to 20.8 %

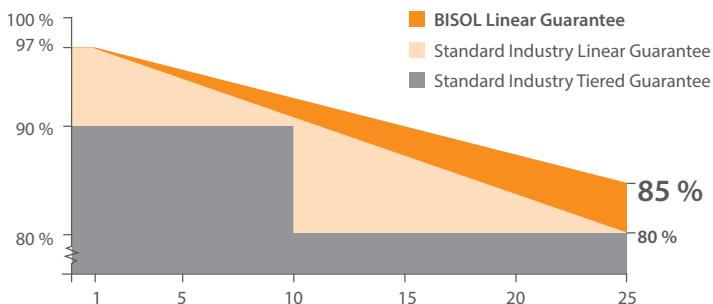


Up to 13 % higher real-life performance



Excellent low light performance

Guarantees:



Linear Guarantee
85 % power output in 25th year



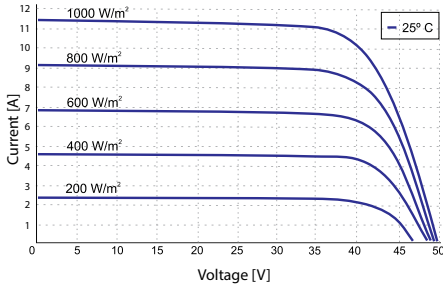
Product Guarantee
15 years

In compliance with:

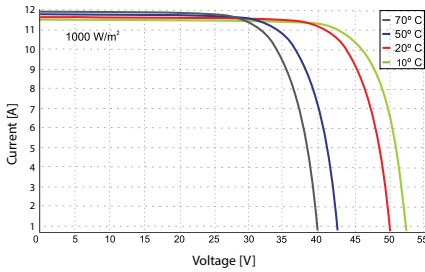


Certificates available upon request. Additional charges may apply. Laminates are manufactured according to IEC 61730 Ed.1 and IEC 61215 Ed.2 standards, but require a certification together with each specific frame or mounting system that the customer decides to use.

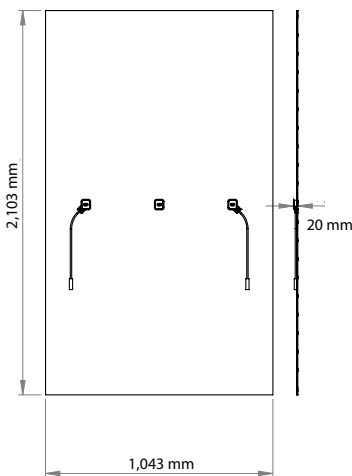
I-V Curve at Various Irradiation Levels



I-V Curve at Various Cell Temperatures



Dimensions



Electrical Specifications @ STC (AM1.5, 1,000 W/m², 25 °C):

Module Type	BBO	450	460
Nominal Power	P_{MPP} [W]	450	460
Short Circuit Current	I_{SC} [A]	11.40	11.5
Open Circuit Voltage	V_{OC} [V]	50.2	50.6
MPP Current	I_{MPP} [A]	10.75	10.9
MPP Voltage	V_{MPP} [V]	41.9	42.2
Module Efficiency	η_M [%]	20.3	20.8
Power Output Tolerance		0/+5 W	
Maximum Reverse Current		20 A	
Maximum System Voltage		1,500 V	
Protection Class		Class II	

Additional power classes available upon request. | Efficiency at irradiation 200 W/m²: 99.3 % of STC efficiency or higher. | Tolerances for V_{OC} and I_{SC} are 3 %.

Electrical Specifications @ NOCT (AM 1.5, 800 W/m², Wind: 1 m/s, Cell Temperature 44 °C):

Module Type	BBO	450	460
Nominal Power	P_{MPP} [W]	336.1	343.5
Short Circuit Current	I_{SC} [A]	9.22	8.82
Open Circuit Voltage	V_{OC} [V]	47.6	39.0
MPP Current	I_{MPP} [A]	8.70	9.30
MPP Voltage	V_{MPP} [V]	38.6	48.0

Power measurement tolerance: ±3 %.

Thermal Specifications:

Current Temperature Coefficient	α	+ 0.06 %/C
Voltage Temperature Coefficient	β	- 0.27 %/C
Power Temperature Coefficient	γ	- 0.35 %/C
NOCT		44 ± 2 °C
Temperature Range		- 40 °C to + 85 °C

Mechanical Specifications:

Length x Width x Thickness	2,103 x 1,043 x 20 mm
Weight	21.5 kg
Solar Cells	144 Half-Cut mono PERC c-Si / 166 mm x 166 mm
Junction Box / Connectors / IP	3 bypass diodes / MC4 compatible / IP 68
Cable Length	Default: 1,200 mm On demand (for portrait orientation): 300 mm
Glass	3.2 mm AR coating tempered glass / high-transparency / low-iron content
Certified Test Load (Snow / Wind)	Depending on Laminate fixation system*
Impact Resistance	Hailstone / Ø 25 mm / 83 km/h (51 mph)

*Certification process can be provided by BISOL upon special request. Additional charges may apply. Tolerances of values are ±5 %. Unspecified product properties remain under full discretion of BISOL Production.

Packaging Information:

Modules per Pallet	Packing Dimension: Length/Width/Height	Stackable	Packing Weight	Tot. Nr. of Pallets/Load
30	230 x 116 x 119 cm	2 pallets	710 kg	22

Additional terms & conditions apply. Please see *Standard Limited Guarantee* and *General Sales Terms & Conditions*.

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