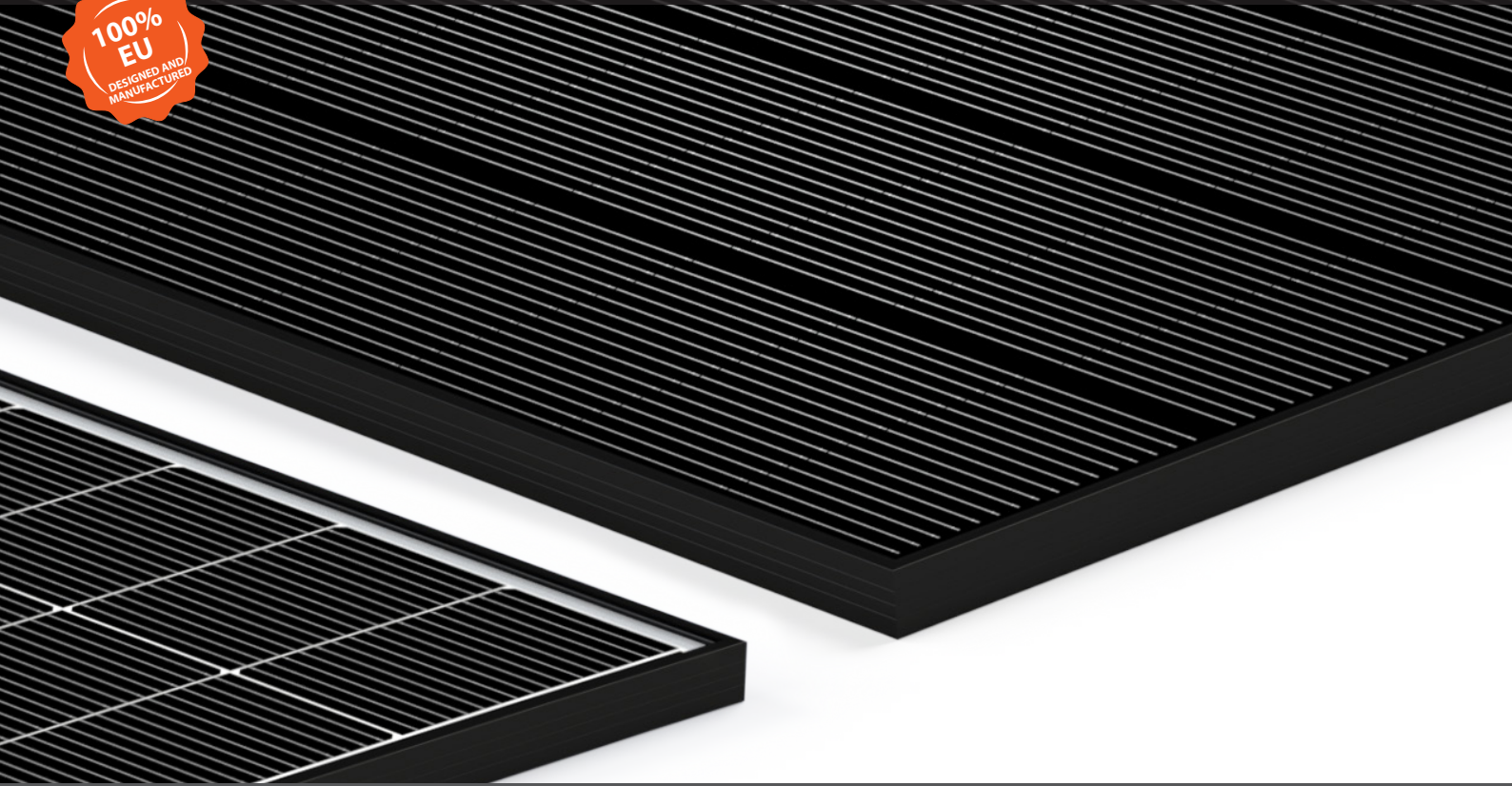


PREMIUM

BISOL® Duplex

Monocrystalline Half-Cut PV Modules (96 Cells) / BDO 440-460 Wp



MADE IN EUROPE



30 YEARS OF EU GUARANTEE



HAIL AND FIRE RESISTANT



UNCOMPROMISINGLY CERTIFIED



6.000 Pa SNOW LOAD



PID AND LETIQ FREE



HIGHEST EFFICIENCY

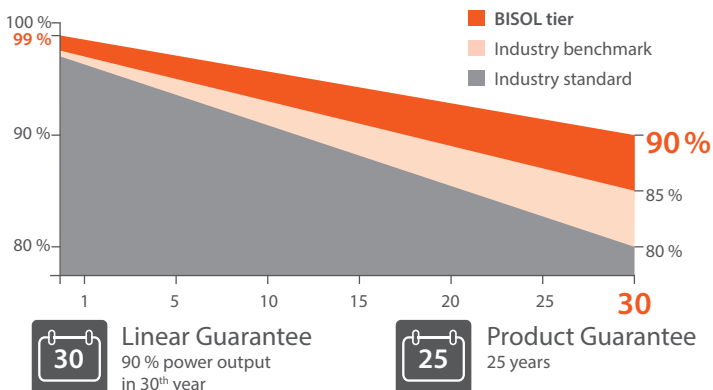


MODULE SORTING TECHNOLOGY



LOW MAINTENANCE COSTS

Guarantee:

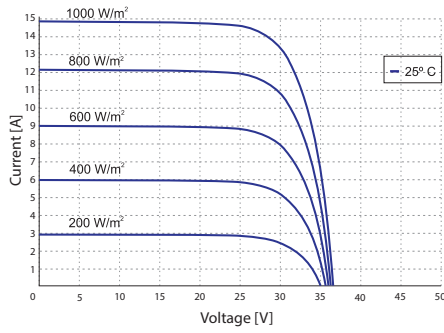


In compliance with:

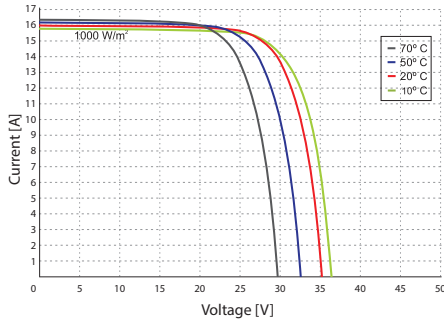


Certificates available upon request. Additional charges may apply.

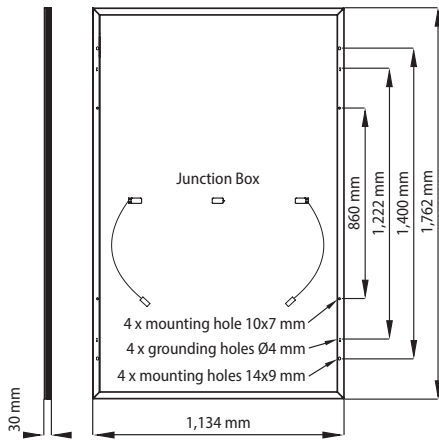
I-V Curve at Various Irradiation Levels



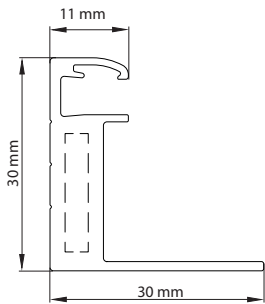
I-V Curve at Various Cell Temperatures



Dimensions



Frame Cross Section



Electrical Specifications @ STC (1,000 W/m², AM 1.5, 25 °C):

Module Type	BDO	440	450	460
Nominal Power	P_{MPP} [W]	440	450	460
Short Circuit Current	I_{SC} [A]	16.0	16.1	16.2
Open Circuit Voltage	V_{OC} [V]	34.9	35.3	35.9
MPP Current	I_{MPP} [A]	15.0	15.2	15.4
MPP Voltage	V_{MPP} [V]	29.3	29.6	29.9
Module Efficiency	η_M [%]	22.0	22.5	23.0
Cell Efficiency	η_C [%]	24.0	24.5	25.1
Power Output Tolerance		0/+5 W		
Maximum System Voltage		1,500 V		
Maximum Reverse Current		30 A		
Protection Class		Class II		

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

Electrical Specifications @ NOCT (800 W/m², AM 1.5, 42 °C, Wind 1 m/s):

Module Type	BDO	440	450	460
Nominal Power	P_{MPP} [W]	338	346	353
Short Circuit Current	I_{SC} [A]	12.9	13.0	13.1
Open Circuit Voltage	V_{OC} [V]	33.4	33.8	34.4
MPP Current	I_{MPP} [A]	12.1	12.3	12.4
MPP Voltage	V_{MPP} [V]	27.9	28.2	28.4

Thermal Specifications:

Current Temperature Coefficient	α	+ 0.05 %/°C
Voltage Temperature Coefficient	β	- 0.25 %/°C
Power Temperature Coefficient	γ	- 0.29 %/°C
NOCT		42 °C (± 3 °C)
Temperature Range		- 40 °C to + 85 °C

Mechanical Specifications:

Length x Width x Thickness	1,762 x 1,134 x 30 mm
Weight	21 kg
Solar Cells	96 Half-Cut c-Si / 182.25 x 105 mm
Junction Box / Connectors / IP	3 bypass diodes / MC4 compatible; On demand: MC4 EVO2 / IP 68
Cable Length	Default: 1,200 mm On demand (for portrait orientation): 300 mm
Frame	Anodized Al with mounting and drainage holes / rigid anchored corners.
Glass	3.2 mm AR coating tempered glass / high-transparency / low-iron content
Certified Test Load (Snow/Wind)	6,000 Pa / 2,400 Pa
Impact Resistance	Hailstone / Ø 40 mm / 99.1 km/h (61.6 mph)

Tolerances of values are ± 5 %. Unspecified product properties remain under full discretion of BISOL Production.

Packaging Information:

Modules per Pallet	Packaging Dimension: Length/Width/Height	Stackable	Packaging Weight	Tot. Nr. of Pallets/Load
35	178 x 116 x 128 cm	3 pallets	759 kg	28