PREMIUM

BISOL® Duplex

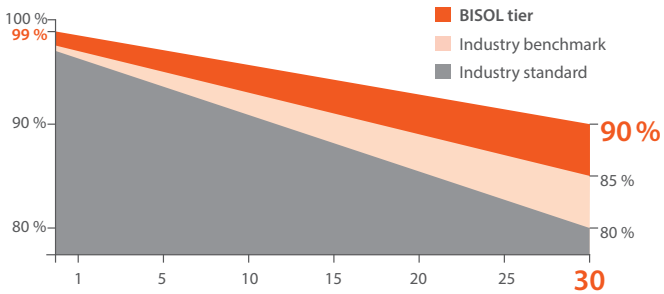
Monocrystalline Half-Cut PV Modules (96 Cells) / BDO 440-460 Wp

100% EU DESIGNED AND MANUFACTURED



- Made in Europe
- 30 years of EU Guarantee
- Hail and Fire resistant
- Uncompromisingly certified
- 6.000 Pa Snow load
- PID and LETID free
- Highest Efficiency
- Module sorting tehnology
- Low maintenance costs

Guarantee:



30 Linear Guarantee
90 % power output in 30th year

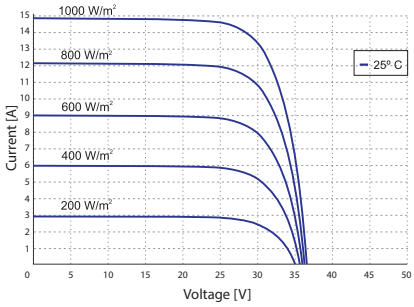
25 Product Guarantee
25 years

In compliance with:

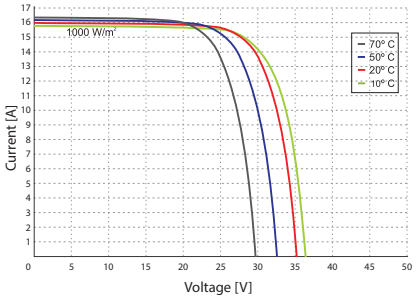
HW3 HW4 | IEC 61730 61215 | IEC 62804-1 | IEC 61701 | IEC 63342 | IEC 62716 Ammonia resistance | Istituto Giordano Fire resistant - Class 1 (UNI 9177) | REACH | RoHS | PFAS Free | EPD® THE INTERNATIONAL EPD® SYSTEM EPD-IES-0016567

Certificates available upon request. Additional charges may apply.

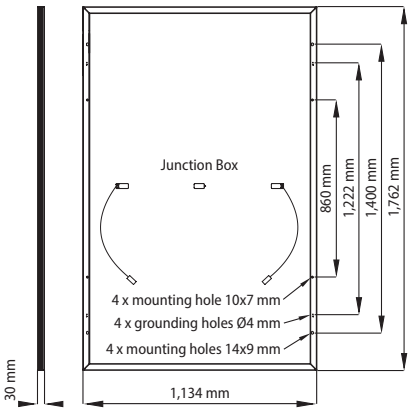
I-V Curve at Various Irradiation Levels



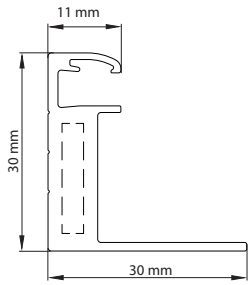
I-V Curve at Various Cell Temperatures



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. | Efficiency at irradiation 200 W/m²: 99.3 % of STC efficiency or higher. | 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	Anodaized 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 / Φ 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

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