



# CARBOBEL

Powering your future.

# CARBOMAT GROUP



## CARBOBEL 440 W Full Black

182mm 16BB mono 108Cells

### Topcon Bifacial PV Module

All Black Glass/Glass Design



### WE DONATE TO CHARITY!

We are doing our part for a better world, we donate 0.50 cents per panel sold.



Bifaciality  
>85%



SMBB  
Technology  
Half Cut  
Topcon Cell



Excellent  
performance  
in low-light  
environments



100% TEST  
MES  
100% inspection,  
to guarantee  
the reliability of  
solar systems



Lower  
temperature  
coefficient



High quality  
junction box and  
connector  
systems



Anti PID



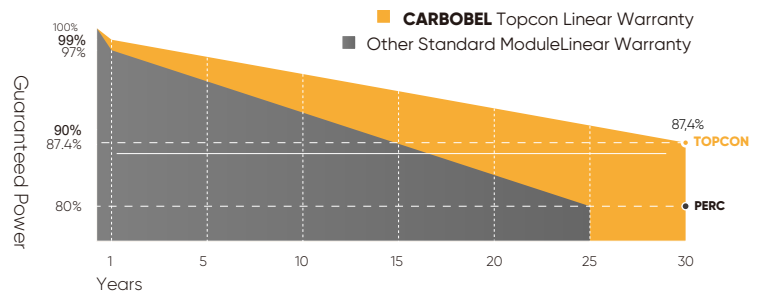
Anti LID



Quality RFID  
Tracking

30 years product warranty

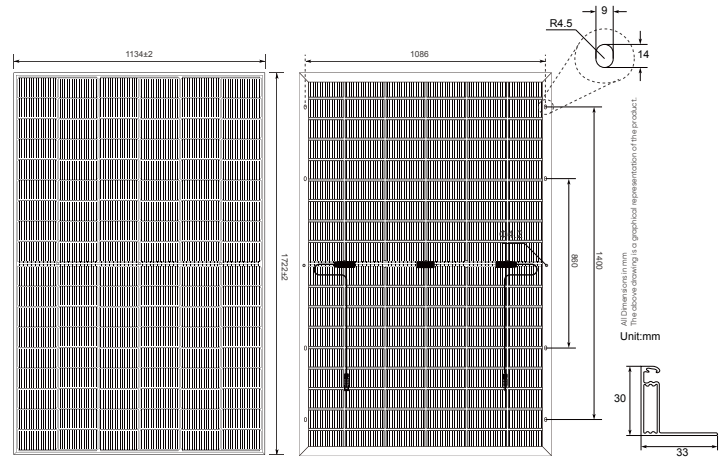
30 years performance warranty



### Mechanical Specifications

External Dimensions	1722x1134x30mm
Weight	22kg
Solar Cells	Topcon Mono crystalline 182x91mm (2x54pcs)
Glass	Front ARC Solar Glass 1.6mm , Back Toughened Glass 1.6mm
Frame	Anodized aluminum alloy
Junction Box	IP68
Output Cables	4.0mm <sup>2</sup> , 1,2m(+), 1,2m(-)
Connector	MC4
Mechanical Load	Front Side Max. 5400Pa, Rear Side Max. 2400Pa

### Dimension Drawing



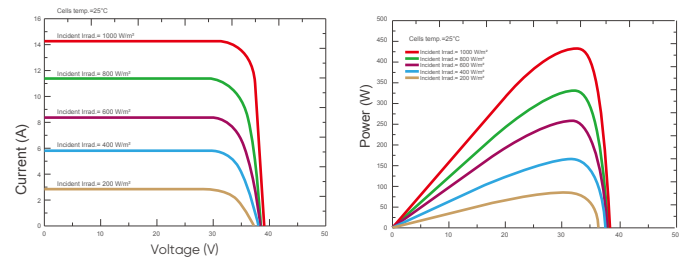
### Electrical Characteristics (STC/NOCT)

Module Type	CBB440M-FB-GG	
	STC	NOCT
Maximum Power- Pmax(W)	440	333.9
Open Circuit Voltage - Voc(V)	38.87	36.6
Short- Circuit Current - Isc(A)	14.39	11.59
Voltage at Pmax - Vmp(V)	32.26	30.5
Current at Pmax - Imp(A)	13.64	10.95
Module Efficiency - ηm(%)	22.53	/
Power Tolerance(W)	( 0 - 4,99W )	
Maximum System Voltage(V)	1000/1500Vdc (IEC / UL)	
Maximum Series Fuse Rating (A)	25A	

STC : Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass 1.5,  
NOCT : Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C,

### I-V Graph

Current-Voltage & Power-Voltage Curves



### Temperature Characteristics

Pmax Temperature Coefficient	-0.3%/°C
Voc Temperature Coefficient	-0.25%/°C
Isc Temperature Coefficient	+0.04%/°C
Operating Temperature	-40~+85°C
Nominal Operating Cell Temperature (NOCT)	45±2°C

### Delivery information

	1722x1134x30mm
Container	40'HQ
Pieces per Pallet	36
Pallets per Container	26
Pieces per Container	936

### Rear Side Power Gain

Power Gain	10%	15%	20%	25%	30%
Maximum Power- Pmax(W)	473.0	494.5	516.0	537.5	554.0
Open Circuit Voltage - Voc(V)	38.60	38.70	38.80	38.80	38.90
Short- Circuit Current - Isc(A)	15.70	16.44	17.18	17.93	18.50
Voltage at Pmax - Vmp(V)	31.70	31.60	31.60	31.60	31.50
Current at Pmax - Imp(A)	14.94	15.64	16.33	17.04	17.58

### CERTIFICATIONS

