

# WINAICO WBC Series Ultra Black

475/480 watt

WST-BDX54-B2



## No frontal gridline

No front-side gridlines maximize light intake and absorption, enabling higher module power output.



## Anti-shading

BC cells with bypass function limit shading loss to a single cell, improving overall energy yield.



## Aesthetic advantage

With all electrodes on the back, BC cells have no front busbars, offering a sleek look ideal for rooftop designs.



## Anti-microcrack advantage

BC modules feature one-line welding structure to reduce edge stress, lowering microcrack risk and improving reliability.

30 years product warranty

30 years linear performance

-1 % 1st-year degradation

-0.35 % annual power degradation

>88.85 % of linear performance after 30 years



*Power to Perform*

[www.winaico.com.au](http://www.winaico.com.au)

## MECHANICAL DATA

Cell	Monocrystalline, N-type, bifacial
Quantity and wiring of cells	108 (6 strings x 18 cells)
Bifaciality	70 ± 5%
Dimensions	1,800 x 1,134 x 35 mm
Weight	25 kg (55.1 lbs)
Front-side glass	2.0 mm, semi-tempered solar glass with anti-reflective coating
Back-side glass	2.0 mm, semi-tempered solar glass, partially black printed
Frame	Black anodised aluminium
Junction box	IP68, 3 bypass diodes
Connector type	MC4-EVO2A
Cable length (IEC/UL)	Cable x 2 1,200 mm / 4 mm <sup>2</sup>
Fire safety class <sup>1</sup> (IEC61730)	Class A
Protection class (IEC 61140)	II

## OPERATING CONDITION

Operating temperature	-40 °C to +85 °C / -40 °F to +185 °F
Maximum system voltage IEC	1,500 V
Maximum series fuse	30 A*
Maximum design load (push/pull)	3,600 Pa / 1,600 Pa
Maximum test load (push/pull)	5,400 Pa / 2,400 Pa
Nominal operation cell temperature NOCT	45 ± 2 °C
Temperature coefficient of P <sub>MAX</sub>	-0.26%/°C
Temperature coefficient of V <sub>OC</sub>	-0.22%/°C
Temperature coefficient of I <sub>SC</sub>	0.05%/°C

\*The installation of additional blocking diodes or fuses is necessary with the parallel connection of module strings.

## ELECTRICAL DATA

Module type

Electrical data		WST-475BDX54-B2			WST-480BDX54-B2			
		STC <sup>2</sup>	NOCT <sup>3</sup>	BNPI <sup>4</sup>	STC <sup>2</sup>	NOCT <sup>3</sup>	BNPI <sup>4</sup>	
Nominal performance	P <sub>MAX</sub>	475	361	515	480	364	520	Wp
Voltage at maximum performance	V <sub>MP</sub>	33.74	32.01	33.75	33.84	32.11	33.85	V
Current at maximum performance	I <sub>MP</sub>	14.09	11.27	15.27	14.19	11.35	15.37	A
Open circuit voltage	V <sub>OC</sub>	40.63	38.55	40.63	40.76	38.67	40.73	V
Short circuit current	I <sub>SC</sub>	14.89	12.03	16.06	14.96	12.09	16.16	A
BSI: 1000 W/m <sup>2</sup> front / 300 W/m <sup>2</sup> rear irradiance	I <sub>SC</sub>	17.72			17.80			A
Module efficiency		23.3			23.5			%
Bifacial gain <sup>5</sup>	10 % P <sub>mp</sub>	523 (+48)			528 (+48)			W
*Depending on irradiation conditions	15 % P <sub>mp</sub>	546 (+71)			552 (+72)			W
	20 % P <sub>mp</sub>	570 (+95)			576 (+96)			W
Power tolerance		0~+5			0~+5			W

## PRODUCT AND QUALITY CERTIFICATES

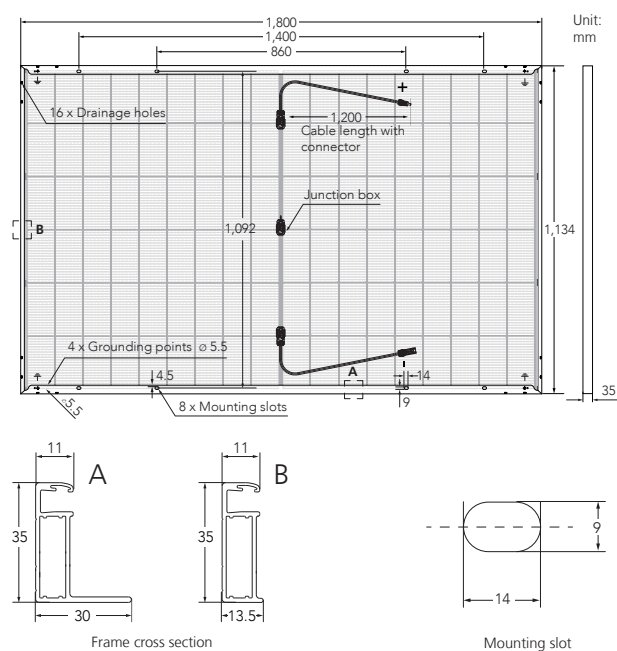
IEC 61215:2021, IEC 61730:2023

ISO 9001 Quality Management System  
ISO 45001 Occupational Health and Safety Management System  
ISO 14001 Environment Management System  
SA 8000 Social Accountability

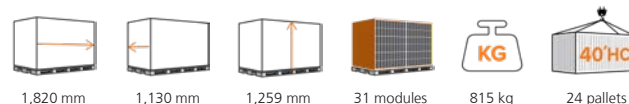


- The fire safety test methods according to IEC 61730-2, Fire Tests of Roof Coverings.
- Electrical data applies under standard test conditions (STC): solar radiation 1,000 W/m<sup>2</sup> with light spectrum AM 1.5, with cell temperature 25 °C. Measurement tolerance of P<sub>max</sub> ±3%; V<sub>oc</sub> ±3%; I<sub>sc</sub> ±3% at STC.
- Electrical data applies under Nominal Operation Cell Temperature (NOCT), irradiance of 800 W/m<sup>2</sup>, spectrum AM 1.5, ambient temperature 20 °C, wind speed 1 m/s.
- BNPI: The front side 1,000 W/m<sup>2</sup> solar irradiance and rear 135 W/m<sup>2</sup>.
- The additional power gain from the rear side depends on the irradiance conditions at the installation site and the mounting situation.

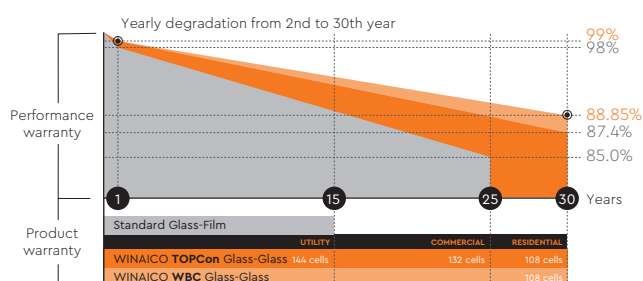
## DIMENSIONS



## PACKAGING



## WINAICO PERFORMANCE GUARANTEE



30 year product guarantee.  
Linear performance guarantee for 30 years.  
No more than 0.35% degradation per year from 2nd year to 30th year.



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