

WINAICO WBC Series Ultra Black

Up to 500 watt
WST-BDX54-B2

BC

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.

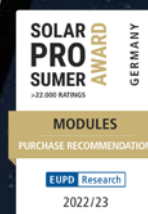
30 years product warranty

30 years linear performance

-1% 1st-year degradation

-0.35% annual power degradation

>88.85% of linear performance after 30 years



 **WINAICO**[®]

Power to Perform

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	Stäubli Electrical Connectors AG PV-KST4-EVO2A/xy, PV-KBT4-EVO2A/xy
Cable length (IEC/UL)	Cable x 2 1,200 mm / 4 mm ²
Fire safety class ¹ (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	1,500VDC
Maximum series fuse	30 A
Maximum design load (push/pull)	+3,600Pa / -1,600Pa
Maximum test load (push/pull)	+5,400Pa / -2,400Pa
Nominal operation cell temperature NOCT	45 ± 2°C
Temperature coefficient of P _{MAX}	-0.26%/°C
Temperature coefficient of V _{OC}	-0.22%/°C
Temperature coefficient of I _{SC}	0.05%/°C

ELECTRICAL DATA

Module type	WST-475BDX54-B2		WST-480BDX54-B2			WST-485BDX54-B2			WST-490BDX54-B2			WST-495BDX54-B2			WST-500BDX54-B2					
	STC ²	NOCT ³	BNPI ⁴	STC ²	NOCT ³	BNPI ⁴	STC ²	NOCT ³	BNPI ⁴	STC ²	NOCT ³	BNPI ⁴	STC ²	NOCT ³	BNPI ⁴	STC ²	NOCT ³		BNPI ⁴	
Electrical data																				
Nominal performance	P _{MAX}	475	361	515	480	364	520	485	368	525	490	372	530	495	375	535	500	379	540	Wp
Voltage at maximum performance	V _{MP}	33.74	32.01	33.75	33.84	32.11	33.85	33.94	32.20	33.95	34.04	32.30	34.05	34.14	32.40	34.15	34.24	32.49	34.25	V
Current at maximum performance	I _{MP}	14.09	11.27	15.27	14.19	11.35	15.37	14.30	11.44	15.47	14.40	11.51	15.57	14.50	11.59	15.67	14.60	11.67	15.77	A
Open circuit voltage	V _{OC}	40.63	38.55	40.63	40.76	38.67	40.73	40.89	38.80	40.83	41.02	38.92	40.93	41.15	39.04	41.03	41.28	39.16	41.13	V
Short circuit current	I _{SC}	14.89	12.03	16.06	14.96	12.09	16.16	15.03	12.15	16.26	15.10	12.21	16.36	15.17	12.26	16.46	15.24	12.32	16.56	A
BSI: 1000 W/m ² front / 300 W/m ² rear irradiance	I _{SC}	17.72		17.80			17.88			17.96			18.04			18.12			A	
Maximum power bifaciality coefficient	φ _{P_{MAX}}	70±5		70±5			70±5			70±5			70±5			70±5			%	
Open circuit current bifaciality coefficient	φ _{V_{OC}}	70±5		70±5			70±5			70±5			70±5			70±5			%	
Short circuit current bifaciality coefficient	φ _{I_{SC}}	100±5		100±5			100±5			100±5			100±5			100±5			%	
Module efficiency		23.3		23.5			23.8			24.0			24.3			24.5			%	
Bifacial gain ⁵	10 % P _{mp}	523 (+48)		528 (+48)			534 (+49)			539 (+49)			545 (+50)			550 (+50)			W	
	15 % P _{mp}	546 (+71)		552 (+72)			558 (+73)			564 (+74)			569 (+74)			575 (+75)			W	
*Depending on irradiation conditions	20 % P _{mp}	570 (+95)		576 (+96)			582 (+97)			588 (+98)			594 (+99)			600 (+100)			W	
Power tolerance		0~+5		0~+5			0~+5			0~+5			0~+5			0~+5			W	

PRODUCT AND QUALITY CERTIFICATES

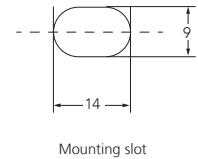
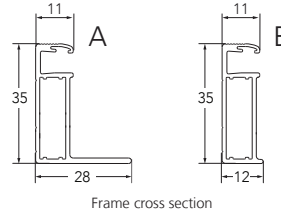
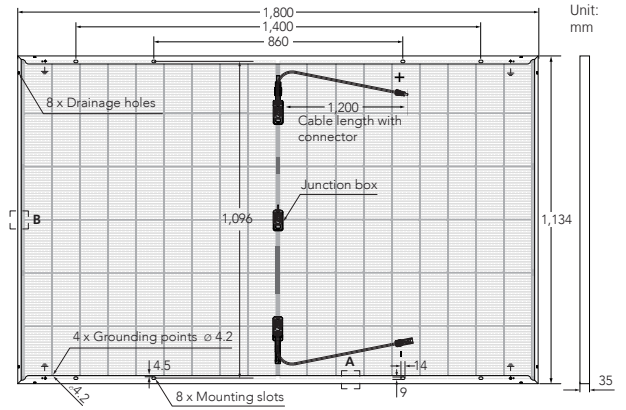
IEC 61215:2021, IEC 61730:2023

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 1,000W/m² with light spectrum AM 1.5, with cell temperature 25°C. Measurement tolerance of P_{max}:±3%; V_{oc}:±3%; I_{sc}:±3% at STC.
- Electrical data applies under Nominal Operation Cell Temperature (NOCT), irradiance of 800 W/m², spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.
- BNPI: The front side 1,000 W/m² solar irradiance and rear 135 W/m².
- The additional power gain from the rear side depends on the irradiance conditions at the installation site and the mounting situation.

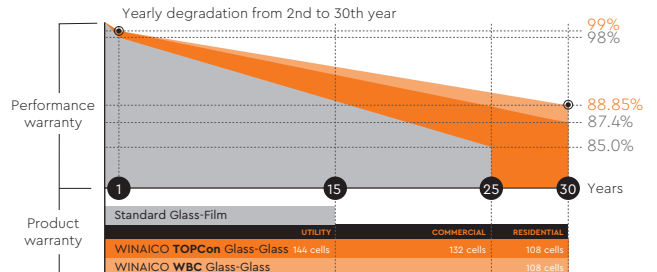
DIMENSIONS



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.



WINAICO Australia Pty Ltd

Tel + 61 2 8091 2771
 australia@winaico.com
 www.winaico.com.au
 3/393 George Street, Sydney NSW 2000, Australia

Win Win Precision Technology Co., Ltd

Tel + 886 3 568 8699 - info@w-w.com.tw
 www.wwpt.com.tw | www.winaico.com
 4F, No. 180, Sec. 2, Gongdao 5th Rd., East Dist.,
 Hsinchu City 300, Taiwan R.O.C.
 Made in China



WINAICO is a trademark of
 Win Win Precision Technology Co., Ltd.