

# N-TYPE BIFACIAL GLASS-GLASS SERIES

435/440/450 watt  
WST-NGX-D3



**Better low-light performance**  
Enhanced electricity production  
in low-irradiance environments



**PID & LID Resistant**  
To reduce power degradation  
and ensure long-term sustained  
performance



**Excellent durability in extreme  
environments**  
WINAICO modules are tested  
above and beyond international  
standards.

- 30 years product warranty
- 30 years linear performance
- 1% 1st-year degradation
- 0.40% annual power degradation
- >87.4% of linear performance after 30 years



PERFORMANCE  
WARRANTY



COMPLIMENTARY  
INSURANCE



*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	Up to 80 %
Dimensions	1,722 x 1,134 x 35 mm
Weight	21.4 kg (47.18 lbs)
Front-side glass	1.6 mm, semi-tempered solar glass with anti-reflective coating
Back-side glass	1.6 mm, semi-tempered solar glass, partially white printed
Frame	Black anodised aluminium
Junction box	IP68, 3 bypass diodes
Connector type	Stäubli PV-KST4-EVO2A/xy (M), PV-KBT4-EVO2A/xy (F) IP68
Cable length (IEC/UL)	Cable 2 x 1,200 mm / 4 mm <sup>2</sup>
Fire safety class <sup>1</sup> (IEC61730)	C
Protection class (IEC 61140)	II

## OPERATING CONDITION

Operating temperature	-40 °C to +85 °C / -40 °F to +185 °F
Maximum system voltage IEC/UL	1,500 V / 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 module operating temperature NMOT	42 ± 2 °C
Temperature coefficient of P <sub>MAX</sub>	-0.30%/°C
Temperature coefficient of V <sub>OC</sub>	-0.25%/°C
Temperature coefficient of I <sub>SC</sub>	0.045%/°C

## ELECTRICAL DATA

Module type	WST-435NGX-D3			WST-440NGX-D3			WST-450NGX-D3			Wp	
	Electrical data	STC <sup>2</sup>	NMOT <sup>3</sup>	BNPI <sup>4</sup>	STC <sup>2</sup>	NMOT <sup>3</sup>	BNPI <sup>4</sup>	STC <sup>2</sup>	NMOT <sup>3</sup>		BNPI <sup>4</sup>
Nominal performance	P <sub>MAX</sub>	435	325	475	440	334	480	450	342	490	
Voltage at maximum performance	V <sub>MP</sub>	33.01	30.83	33.01	33.26	31.32	33.26	33.76	31.79	33.76	V
Current at maximum performance	I <sub>MP</sub>	13.18	10.58	14.47	13.23	10.6	14.49	13.33	10.75	14.75	A
Open circuit voltage	V <sub>OC</sub>	38.72	36.82	38.72	38.88	37.23	38.88	39.36	37.69	39.36	V
Short circuit current	I <sub>SC</sub>	13.89	11.12	15.29	13.98	11.27	15.30	14.08	11.35	15.57	A
BSI: 1000 W/m <sup>2</sup> front / 300 W/m <sup>2</sup> back irradiance	I <sub>SC</sub>		17.22			17.34			17.40		A
Module efficiency			22.3			22.5			23.0		%
Bifacial gain <sup>4</sup> *Depending on irradiation conditions	10 % P <sub>mp</sub>		478 (+43)			484 (+44)			495 (+45)		W
	15 % P <sub>mp</sub>		500 (+65)			506 (+66)			518 (+68)		W
	20 % P <sub>mp</sub>		522 (+87)			528 (+88)			540 (+90)		W
Power tolerance			0~+5			0~+5			0~+5		W

## PRODUCT AND QUALITY CERTIFICATES

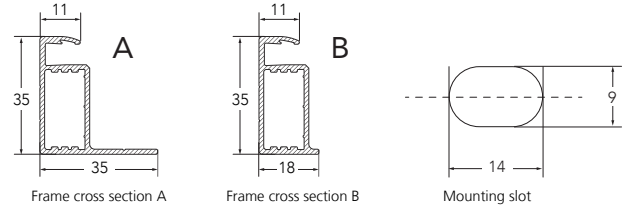
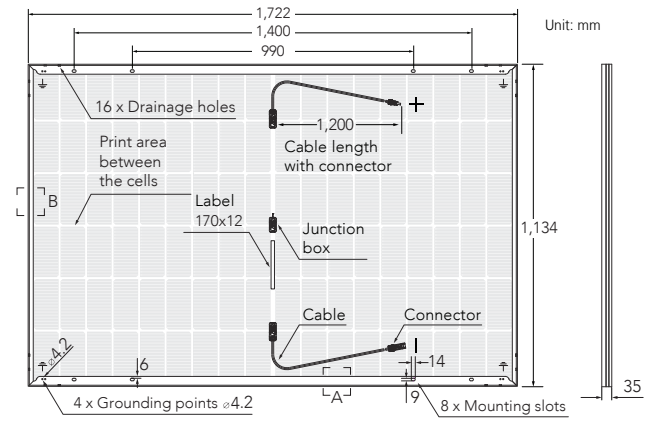
IEC 61215:2021, IEC 61730:2023

ISO 9001 Quality Management System  
ISO 50001 Occupational Health and Safety Management System  
ISO 14001 Environment Management System



- 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>: ±5% at STC.
- Electrical data applies under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m<sup>2</sup>, spectrum AM 1.5, ambient temperature 20 °C, wind speed 1 m/s.

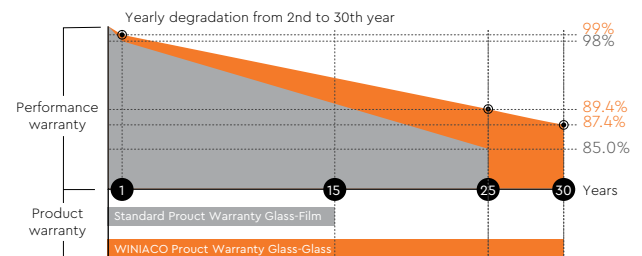
## DIMENSIONS



## PACKAGING



## WINAICO PERFORMANCE GUARANTEE



30 year product guarantee.  
Linear performance guarantee for 30 years.  
No more than 0.4% degradation per year from 2nd year to 30th year.

- 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.



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