

# ELITE SERIES

## N-TYPE

BiN-06-465 to BiN-06-495

Framed Dual Glass Bifacial module

# WAAREE®

One with the Sun



Highest reliability & enhanced crack tolerance MBB module



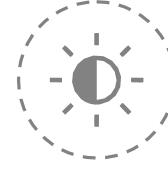
Sustain heavy snow & wind loads (5400 Pa & 2400 Pa)



Best in class thermal coefficients



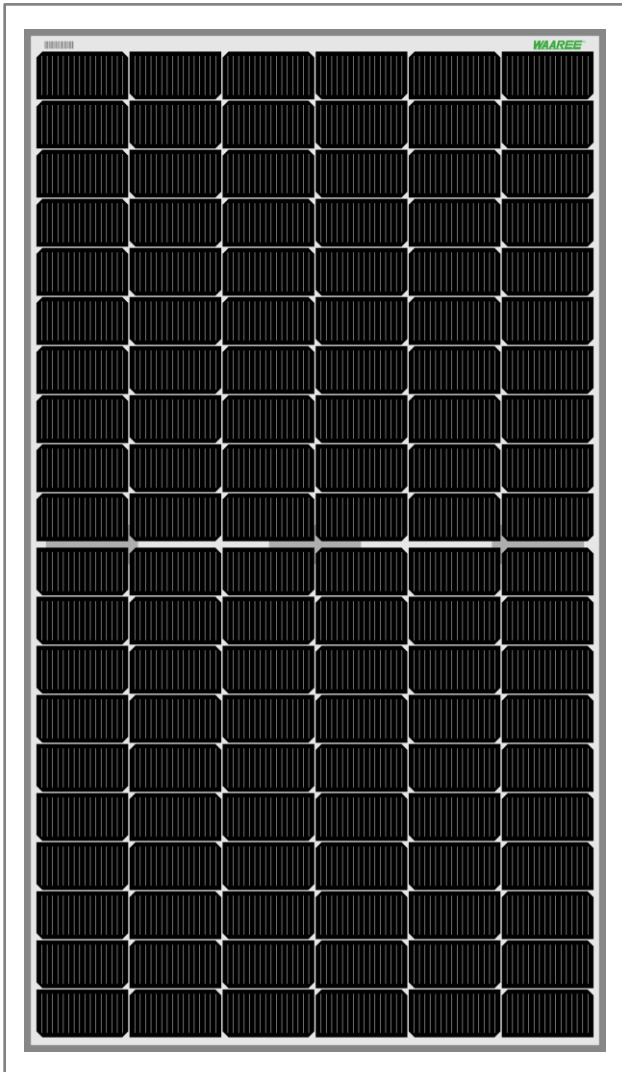
Highest commercial gains, lower LCOE



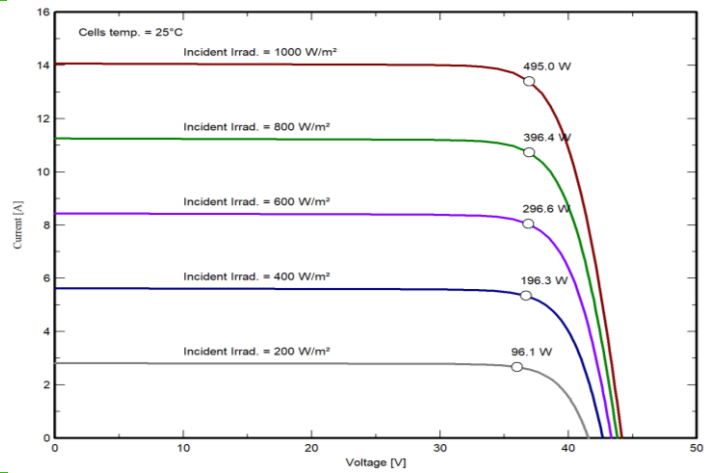
Better weak light performance



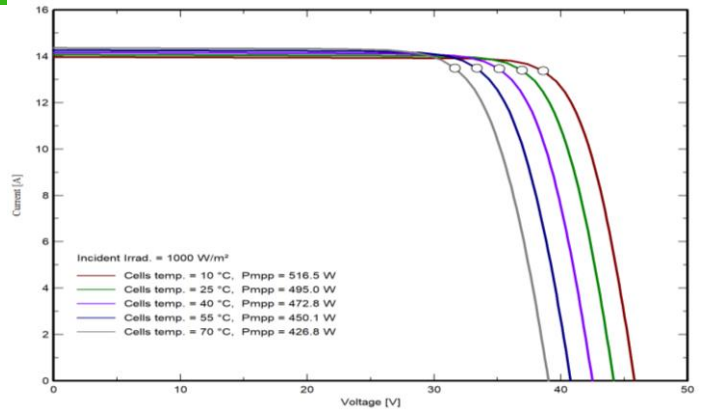
Excellent PID resistance



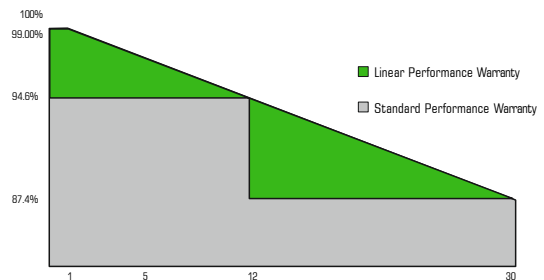
## I-V VARIATION WITH IRRADIANCE



## I-V VARIATION WITH TEMPERATURE



The Graphs are for reference purpose only. Please consult Waaree technical team for further clarifications.



IEC 61215, IEC 61730  
UL 61730-1, UL 61730-2

ISO 9001:2015 | ISO 14001:2015 | ISO 45001:2018  
Independent assessment of factories by BLACK & VEATCH

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### ELECTRICAL CHARACTERISTICS

Models	Pmax (W)		Vmp (V)		Imp (A)		Isc (A)		Voc (V)		Module Eff. (%)
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	
BiN-06-465	465	351.10	36.16	33.70	12.86	10.39	13.64	11.01	43.02	40.87	21.53
BiN-06-470	470	354.90	36.32	33.85	12.94	10.46	13.71	11.06	43.20	41.04	21.76
BiN-06-475	475	358.60	36.48	34.00	13.02	10.52	13.78	11.12	43.44	41.27	21.99
BiN-06-480	480	362.40	36.64	34.15	13.10	10.58	13.85	11.18	43.62	41.44	22.22
BiN-06-485	485	366.20	36.80	34.30	13.18	10.65	13.92	11.23	43.80	41.61	22.45
BiN-06-490	490	370.00	36.95	34.44	13.26	10.71	13.99	11.29	43.98	41.78	22.68
BiN-06-495	495	373.70	37.11	34.58	13.34	10.78	14.06	11.35	44.16	41.95	22.91

\*Standard Test Conditions (STC) - 1000 W/m<sup>2</sup> irradiance, Air Mass 1.5 and 25°C cell temperature. Nominal Operating Cell Temperature (NOCT) - 800 W/m<sup>2</sup> irradiance, Air Mass 1.5, Ambient temperature 20°C and Wind speed 1 m/s. Average power reduction of 4.5% at 200 W/m<sup>2</sup> as per IEC 60904-1. Measuring Uncertainty ± 3%.

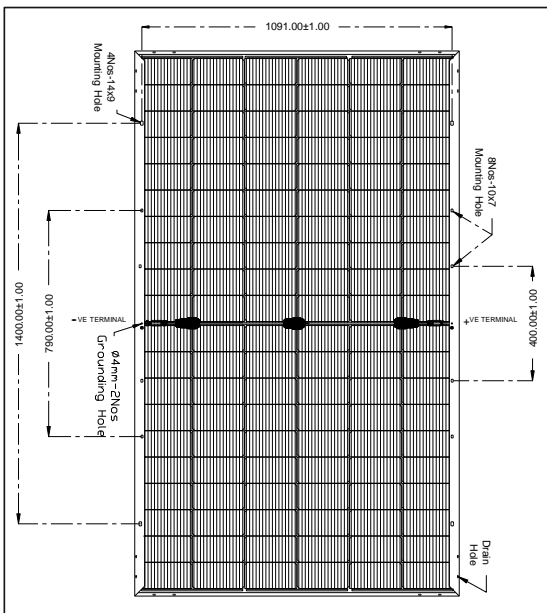
System Voltage	1500 V	Series Fuse Rating	30 A
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### BI-FACIAL OUTPUT - BACKSIDE POWER GAIN\*

		BiN-06-465	BiN-06-470	BiN-06-475	BiN-06-480	BiN-06-485	BiN-06-490	BiN-06-495
15%	Power Output (W)	535	541	546	552	558	564	569
	Module Efficiency (%)	24.76	25.02	25.29	25.55	25.82	26.08	26.35
20%	Power Output (W)	558	564	570	576	582	588	594
	Module Efficiency (%)	25.84	26.11	26.39	26.66	26.94	27.22	27.49
25%	Power Output (W)	581	588	594	600	606	613	619
	Module Efficiency (%)	26.91	27.20	27.49	27.78	28.06	28.35	28.64
30%	Power Output (W)	605	611	618	624	631	637	644
	Module Efficiency (%)	27.99	28.29	28.59	28.89	29.19	29.48	29.78

\*The bifacial gains are dependant on the power plant design and location

### DESIGN SPECIFICATIONS



### THERMAL CHARACTERISTICS

Temperature coefficient of Current (Isc), $\alpha$ (%/°C)	0.046
Temperature coefficient of Voltage (Voc), $\beta$ (%/°C)	-0.26
Temperature coefficient of Power (Pm), $\gamma$ (%/°C)	-0.30
NOCT (°C)	43 ± 2
Operating temperature range (°C)	-40 to 85
Bifaciality Factor (%)	80 ± 10

### MECHANICAL CHARACTERISTICS

Length x Width x Thickness (L x W x T)	1905 mm (L) x 1134 mm (W) x 33 mm (T)
Weight	27 kgs
Solar Cells per Module (Units) / Arrangement	120 cells / (10x6     10x6)
Solar Cell Type & Size	M10/M10R N-type TOPCon Bifacial
Front Glass (Material / Thickness)	2 mm Low Iron HTAR semi-tempered glass
Back Glass (Material / Thickness)	2 mm Low Iron Printed semi-tempered glass
Encapsulate	PID Free & UV Resistant
Junction Box (Protection degree / Material)	IP68 / Weatherproof PPO
Cable & Connector (Protection degree / Type)	IP68 rated / MC4 compatible
Cable cross - section & Length	4 mm <sup>2</sup> & 500mm
Frame	Anodized Aluminium Alloy

Waaree Energies Ltd. is amongst the top Solar Energy Companies and has the country's largest Solar PV Module manufacturing capacity of 12 GW. In addition, it is committed to provide top notch EPC services, project development, rooftop solutions, solar water pumps and also in an Independent Power Producer. Waaree has its presence in over 350+ locations nationally and 68 countries globally.

**12 Years Product Warranty • 30 Years Power Output Warranty**

- The electrical data given here is for reference purpose only.
- Please confirm your exact requirements with the sales representative while placing your order.
- Refer installation Manual instructions & Waaree warranty statement for terms & conditions.
- Waaree Reserves the right to change the specifications without prior notice.

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