

ELITE SERIES

N-TYPE

BiN-15-515 to BiN-15-545

Framed Glass Transparent Backsheet Bifacial module

WAAREE®

One with the Sun



Highest reliability & enhanced crack tolerance MBB module



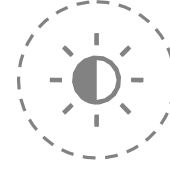
Sustain heavy snow & wind loads (5400 Pa & 2400 Pa)



Best in class thermal coefficients



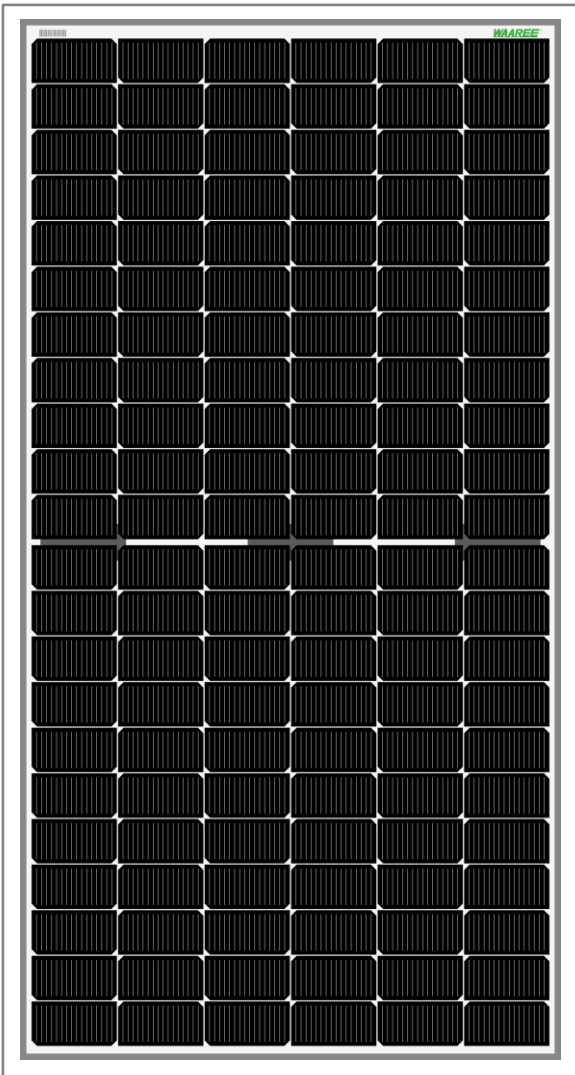
Highest commercial gains, lower LCOE



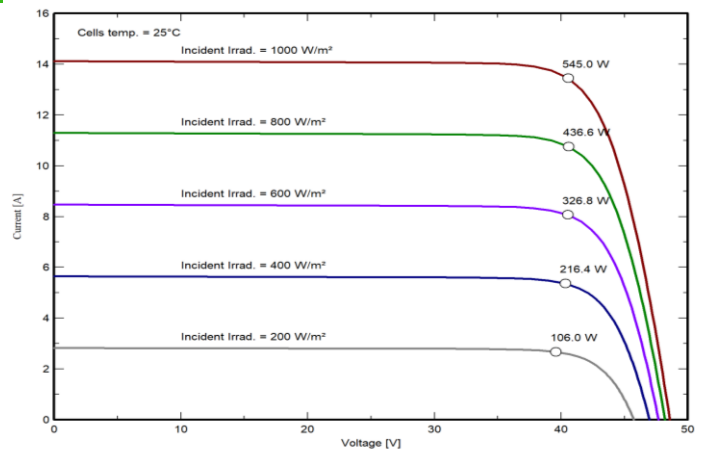
Better weak light performance



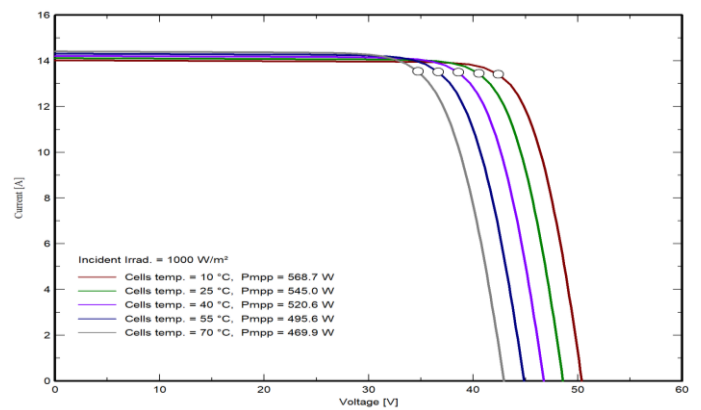
Excellent PID resistance



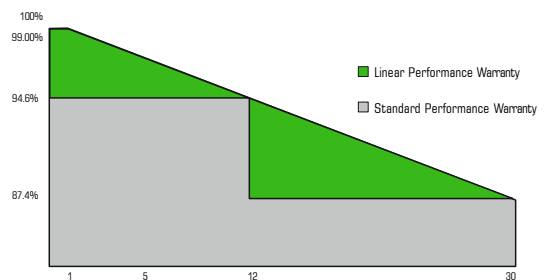
I-V VARIATION WITH IRRADIANCE



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-15-515	515	388.80	39.92	37.21	12.90	10.42	13.69	11.05	47.39	45.02	21.74
BiN-15-520	520	392.60	40.06	37.34	12.98	10.49	13.76	11.10	47.59	45.21	21.95
BiN-15-525	525	396.40	40.20	37.47	13.06	10.55	13.83	11.16	47.79	45.40	22.16
BiN-15-530	530	400.20	40.33	37.59	13.14	10.62	13.90	11.22	47.99	45.59	22.37
BiN-15-535	535	403.90	40.47	37.72	13.22	10.68	13.97	11.27	48.18	45.77	22.58
BiN-15-540	540	407.70	40.60	37.84	13.30	10.75	14.04	11.33	48.38	45.96	22.80
BiN-15-545	545	411.50	40.73	37.96	13.38	10.81	14.11	11.39	48.58	46.15	23.01

*Standard Test Conditions (STC) - 1000 W/m² irradiance, Air Mass 1.5 and 25°C cell temperature. Nominal Operating Cell Temperature (NOCT) - 800 W/m² irradiance, Air Mass 1.5, Ambient temperature 20°C and Wind speed 1 m/s. Average power reduction of 4.5% at 200 W/m² as per IEC 60904-1. Measuring Uncertainty ± 3%.

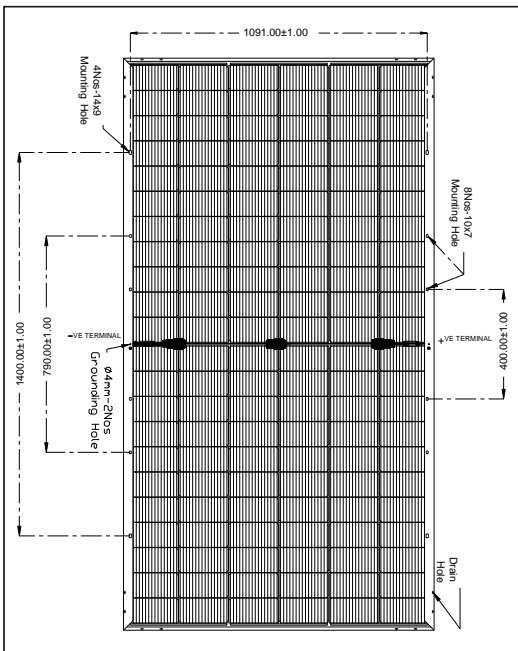
System Voltage	1500 V	Series Fuse Rating	30 A
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BI-FACIAL OUTPUT - BACKSIDE POWER GAIN*

		BiN-15-515	BiN-15-520	BiN-15-525	BiN-15-530	BiN-15-535	BiN-15-540	BiN-15-545
15%	Power Output (W)	592.25	598	604	610	615	621	627
	Module Efficiency (%)	25.00	25.24	25.48	25.73	25.97	26.22	26.46
20%	Power Output (W)	618	624	630	636	642	648	654
	Module Efficiency (%)	26.09	26.34	26.59	26.84	27.10	27.36	27.61
25%	Power Output (W)	643.75	650	656	663	669	675	681
	Module Efficiency (%)	27.18	27.44	27.70	27.96	28.23	28.50	28.76
30%	Power Output (W)	669.5	676	683	689	696	702	709
	Module Efficiency (%)	28.26	28.54	28.81	29.08	29.35	29.64	29.91

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

DESIGN SPECIFICATIONS



THERMAL CHARACTERISTICS

Temperature coefficient of Current (Isc), α (%/°C)	0.046
Temperature coefficient of Voltage (Voc), β (%/°C)	-0.26
Temperature coefficient of Power (Pm), γ (%/°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)	2089 mm (L) x 1134 mm (W) x 33 mm (T)
Weight	25.5 kgs
Solar Cells per Module (Units) / Arrangement	132 cells / (11x6 11x6)
Solar Cell Type & Size	M10/M10R N-type TOPCon Bifacial
Front Glass (Material / Thickness)	3.2 mm Low Iron HTAR Tempered glass
Backsheet	Transparent / Patterned Backsheet
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 ² & 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

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BiN-16-565 to BiN-16-600

Framed Glass Transparent Backsheet Bifacial module

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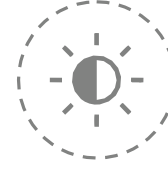
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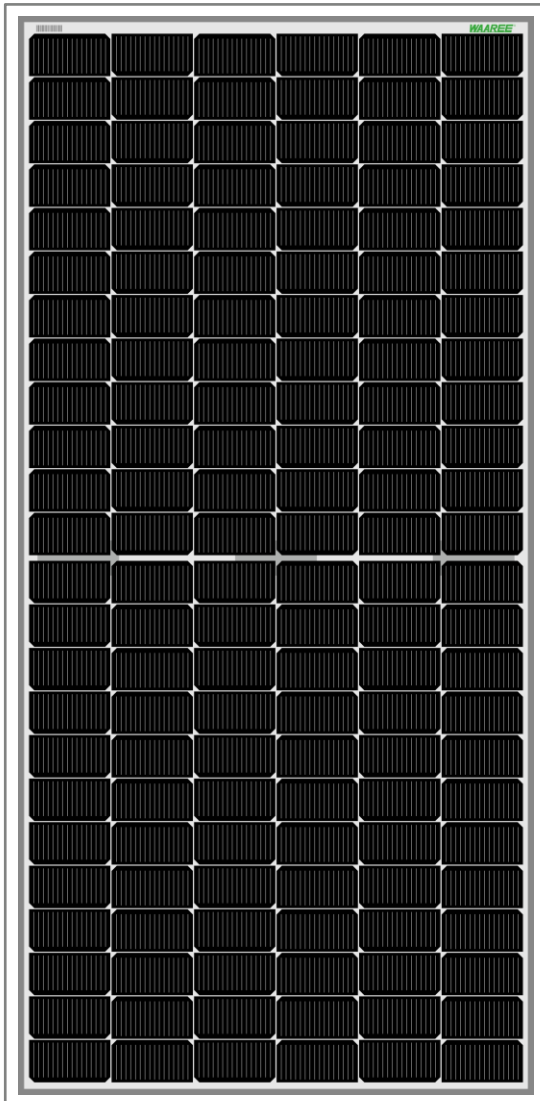
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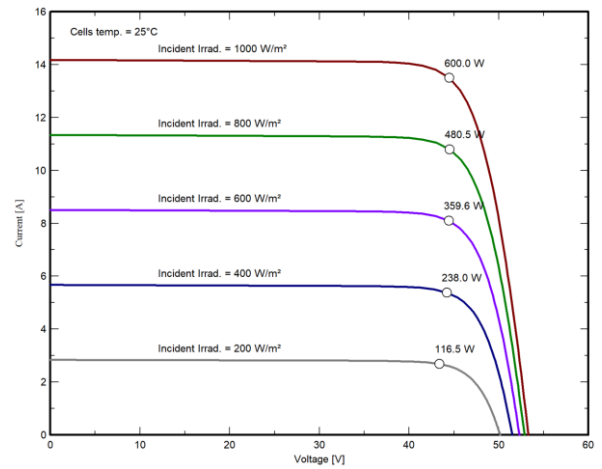
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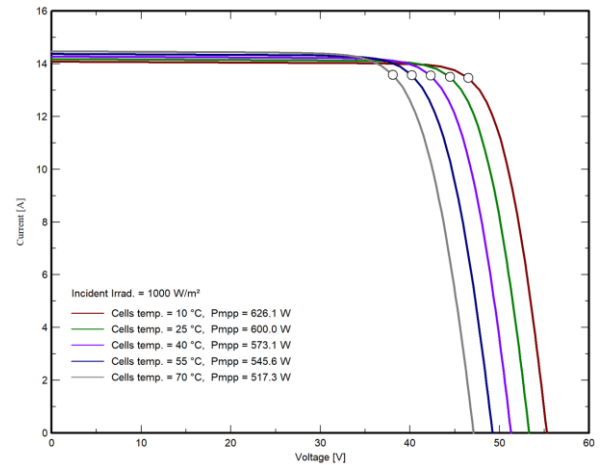
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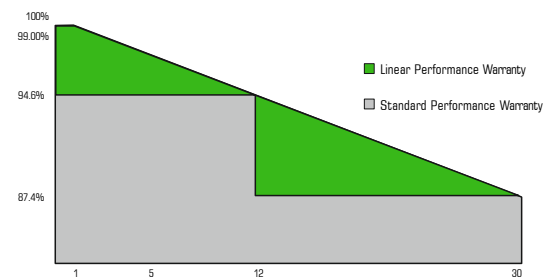
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ELECTRICAL CHARACTERISTICS

	Pmax (W)		Vmp (V)		Imp (A)		Isc (A)		Voc (V)		Module Eff. (%)
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	
BiN-16-565	565	426.60	43.56	40.60	12.97	10.48	13.75	11.10	51.90	49.31	21.87
BiN-16-570	570	430.40	43.71	40.74	13.04	10.54	13.81	11.14	52.10	49.50	22.07
BiN-16-575	575	434.10	43.86	40.88	13.11	10.59	13.87	11.19	52.30	49.69	22.26
BiN-16-580	580	437.90	44.01	41.01	13.18	10.65	13.93	11.24	52.50	49.88	22.45
BiN-16-585	585	441.70	44.15	41.15	13.25	10.71	13.99	11.29	52.70	50.07	22.65
BiN-16-590	590	445.50	44.29	41.28	13.32	10.76	14.05	11.34	52.90	50.26	22.84
BiN-16-595	595	449.20	44.44	41.41	13.39	10.82	14.11	11.39	53.10	50.45	23.03
BiN-16-600	600	453.00	44.61	41.65	13.45	10.88	14.17	11.44	53.30	50.64	23.23

*Standard Test Conditions (STC) - 1000 W/m² irradiance, Air Mass 1.5 and 25°C cell temperature. Nominal Operating Cell Temperature (NOCT) - 800 W/m² irradiance, Air Mass 1.5, Ambient temperature 20°C and Wind speed 1 m/s. Average power reduction of 4.5% at 200 W/m² as per IEC 60904-1. Measuring Uncertainty ± 3%.

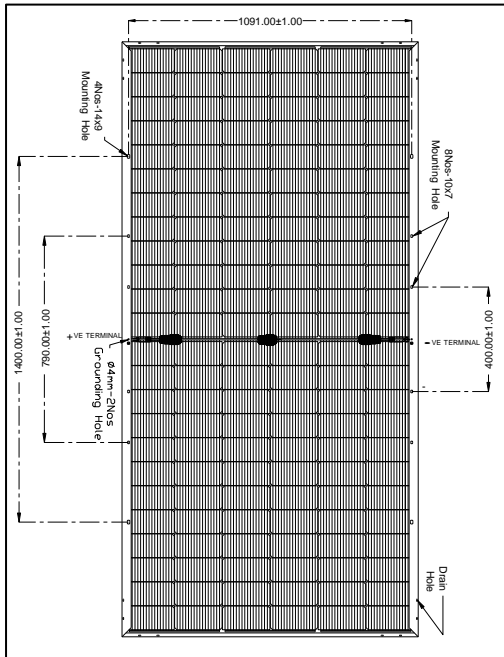
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BI-FACIAL OUTPUT - BACKSIDE POWER GAIN*

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15%	Power Output (W)	650	656	661	667	673	679	684	690
	Module Efficiency (%)	25.15%	25.38	25.60	25.82	26.05	26.27	26.48	26.71
20%	Power Output (W)	678	684	690	696	702	708	714	720
	Module Efficiency (%)	26.24%	26.48	26.71	26.94	27.18	27.41	27.64	27.88
25%	Power Output (W)	706	713	719	725	731	738	744	750
	Module Efficiency (%)	27.34%	27.5	27.83	28.06	28.31	28.55	28.79	29.04
30%	Power Output (W)	735	741	748	754	761	767	774	780
	Module Efficiency (%)	28.43	28.69	28.94	29.19	29.45	29.69	29.94	30.20

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