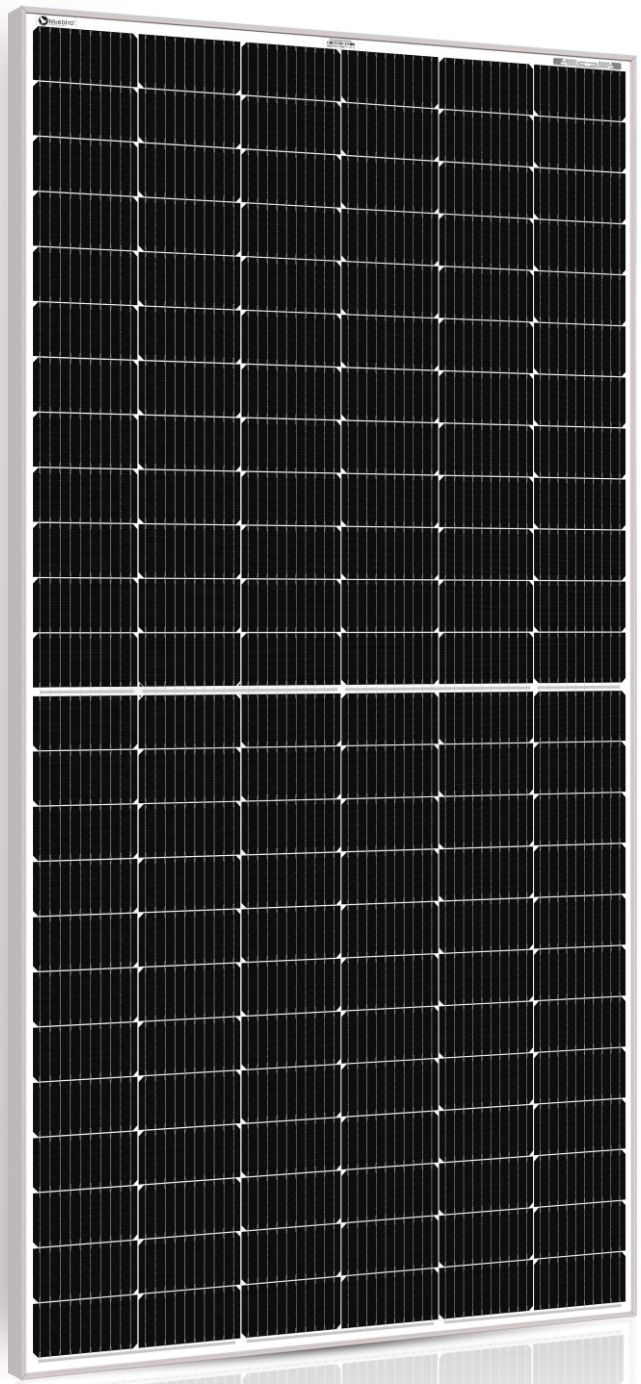
144 Cells **MONO PERC** Half-Cut PV Module

525Wp - 550Wp

Bifacial (Transparent Backsheet) | M10 Cells

DCR & Non-DCR

bluebird SOLAR
co-powering the future



Max. 21.31% Module Efficiency	Upto ~+5Wp Power Tolerance
70 ± 5% Bifaciality Factor	IP68 split Junction Box
2400 Pa & 5400 Pa Wind & Snow Load Capacity	

Bi-Facial Power Gain
Upto 30% power gain depending on the installation & albedo of the reflecting surface

Low Light Performance
Excellent low-light performance ensures consistent energy generation even on cloudy days.

MBB Cell Technology
Lower conversion loss, better partial shade performance, improved light absorption and reduced cell stress.

High Profitability
Reduced BOS Cost resulting in More Savings, Lower LCOE & shorter payback period.

Lower Thermal Co-efficients
Better Temperature Co-efficients resulting in higher power generation in high ambient temperatures.

PID Resistance
Excellent PID resistance to guarantee limited power degradation

Stain Resistant Backsheet
Backsheet's anti-staining performance cuts rear module cleaning frequency, reducing water usage.

0% Microcracks & Hotspots
PRE & POST Electroluminescence checks to ensure defect free modules.

30 YEARS WARRANTY
Linear Output Performance

12 YEARS WARRANTY
Product & Workmanship

Certifications

ISO 9001:2015
ISO 14001:2015
ISO 45001:2018

IEC 61215/IS14286, IEC 61730-1, IEC 61730-2, IEC 62804 (PID), IEC 61701 (Salt Mist), IEC 62716 (Ammonia Corrossion), IEC 61853 (Performance, PAN & IAM), IEC 60068-2 (Sand Dust), IEC 62782 (DMLT), LID, LeTID, BIS Approved, ALMM Enlisted

Applications

- Utility Projects
- C &I Projects
- Home & Residential
- Water Pumps

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144 Cells TECHNICAL DATA

Mono PERC | Bifacial PV Modules | Transparent Backsheet | 525Wp - 550Wp

Module Series	Module Name BBS24MCHHH-TB (HHH=525 - 550)					

Electrical Characteristics at STC

Maximum Power Pmax (Wp)	525	530	535	540	545	550
Maximum Voltage Vmpp (V)	41.35	41.48	41.65	41.78	41.93	41.90
Maximum Current Impp (A)	12.70	12.78	12.85	12.93	13.00	13.13
Open Circuit Voltage Voc (V)	49.20	49.35	49.50	49.65	49.80	49.70
Short Circuit Current Isc (A)	13.47	13.53	13.60	13.68	13.76	13.83
Module Efficiency (%)	20.34	20.53	20.73	20.92	21.12	21.31
Fill factor (%)	79.24	79.39	79.50	79.54	79.55	80.04

STC:1000W/m2 irradiance, 25°C cell temperature, AM1.5G spectrum according to EN 60904-3
Average relative efficiency reduction of<5% for every 200W/m reduction in Irradiance, according to EN 60904-1

Electrical Characteristics at NOCT

Maximum Power Pmax (Wp)	392.70	396.44	400.30	404.00	408.30	412.20
Maximum Voltage Vmpp (V)	38.44	38.56	38.64	38.74	38.84	38.94
Maximum Current Impp (A)	10.22	10.28	10.36	10.43	10.51	10.59
Open Circuit Voltage Voc (V)	46.00	46.14	46.37	46.55	46.70	46.83
Short Circuit Current Isc (A)	10.85	10.90	10.97	11.03	11.09	11.15

NOCT:800W/m2 irradiance, 20°C ambient temperature, Wind Speed 1m/sec

Backside Bi-faciality Power Gain

10% Power Output (Wp)	578	583	589	594	600	605
Module Efficiency (%)	22.38	22.59	22.80	23.01	23.23	23.44
15% Power Output (Wp)	604	610	615	621	627	633
Module Efficiency (%)	23.39	23.62	23.84	24.06	24.28	24.51
20% Power Output (Wp)	630	636	642	648	654	660
Module Efficiency (%)	24.41	24.64	24.87	25.11	25.34	25.57
25% Power Output (Wp)	656	663	669	675	681	688
Module Efficiency (%)	25.43	25.67	25.91	26.15	26.40	26.64
30% Power Output (Wp)	683	689	696	702	709	715
Module Efficiency (%)	26.44	26.70	26.95	27.20	27.45	27.70

Bifacial gains depends on the power plant design and albedo of installation site
BNPI: 1000W/M2+ϕ.135, BIFACILITY COEFF. (ϕ) AT BNPI PMAX, ISC IS 70±10% & FOR VOC IS 99±10% , AM 1.5, 25°C
TOLERANCE OF RATING AT BNPI (PMPP/ ISC/ VOC) [%] : 0-3/±5/±5

Temperature coefficient (Tc) and permissible operating conditions

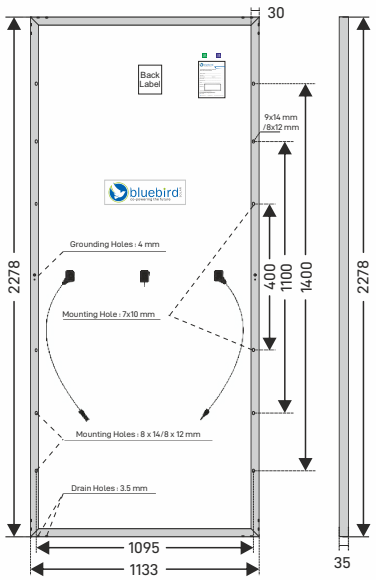
Tc of Open Circuit Voltage	-0.27%/°C
Tc of Short Circuit Current	0.050%/°C
Tc of Power	-0.35%/°C
NOCT	45 ± 2°C
Maximum series fuse ratings	25A
Temperature Range	-40°C to +85°C
Bi-faciality Factor	70 ± 5%
Maximum System Voltage	1500V DC

Mechanical Data

Dimension (LxWxH)	2278mm x 1133mm x 35mm
Weight	28 Kg ± 2%
Solar Cells (PID Free)	144 (12 x 6 x 2) Mono PERC Cut Cells, 10BB, (182x91mm)
Superstrate	3.2 mm AR Coated, high transmission, low iron tempered glass
EVA / Encapsulant	EVA / POE / EPE - PID Free & UV Resistant
Substrate	Composite film, Transparent backsheet
Frame	Silver anodized aluminum frame with twin wall profile
Junction Box	IP68, split junction box with 3 individual bypass diodes
Cables & Connectors	4 sq.mm cables, 400 mm (+Ve) and 400 mm (-Ve) cables length, MC4 Compatible or MC4 Connectors
Application Class	Class A (Safety class II)
Mechanical Load Test	Sustain heavy static load (2400 Pa & 5400 Pa)
Packaging	Standard 30 modules per pallet

**Refer to Bluebird Solar's warranty documents for terms and conditions.
Specification and electrical data included in this datasheet are subject to change without notice. Please confirm your requirements with the company representative while placing your order
Note: It is mandatory to make negative grounding of modules in all installation to avoid PID Issue.

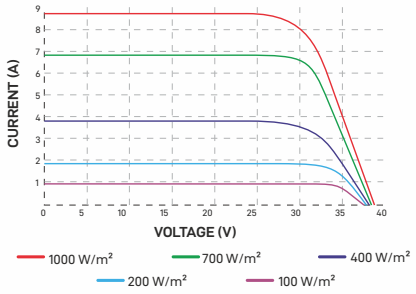
Back view Side view



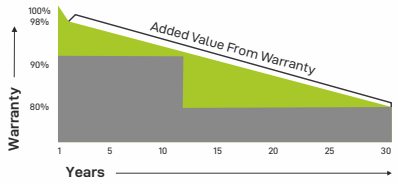
Sectional View of AL profile

All dimensions are in mm with ± 2mm tolerance

I-V Curve (for Different Irradiance)



Warranty Graph



Product Warranty : 12 Years

Performance Warranty : Linear Power Warranty for 30 years with 2% for 1st year degradation and 0.55% from year 2 to 30 year

Approvals and Certifications

Products:*	IEC 61215/IS14286, IEC 61730-1, IEC 61730-2, IEC 62804 (PID), IEC 61701 (Salt Mist), IEC 62716 (Ammonia Corrosion), IEC 61853 (Performance, PAN & IAM), IEC 60068-2 (Sand Dust), IEC 62782 (DMLT), LID, LeTID, BIS Approved, ALMM Enlisted
Manufacturing:	ISO 9001:2015, ISO 14001: 2015, ISO 45001:2018

*some certifications are under process

Packaging Information

Truck Type	Pallet/Truck	Modules/Truck	KW/Truck(Approx)
19 ft.	10	300	162
22 ft.	12	360	194.4
32 ft.	18	540	291.6
40 ft.	22	660	356.4
Container Type	**Pallet/Truck**	**Module/Truck**	**KW/Truck(Approx)**
40 HQ	22	660	356.4

Above quantities are subject to variation depending on miscellaneous Factors
Trucks under consideration are all open body trucks. | Customized packaging available.

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