

ATULYA GAMMA SERIES

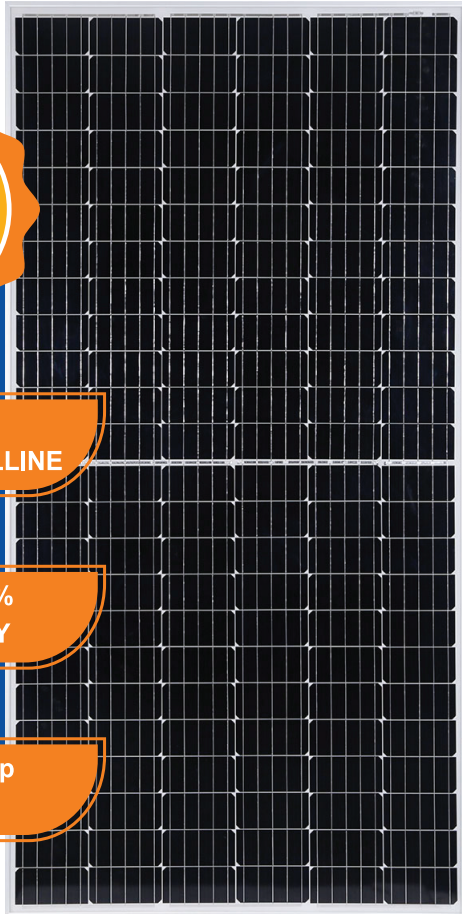
ATULYA PIL-144HC-430-450 | MONO HALF-CUT SOLAR MODULES | 144 HALF CUT CELLS | 430 – 450 Wp



144 Cells
MONOCRYSTALLINE

Upto 19.07%
EFFICIENCY

430 – 450 Wp
RANGE



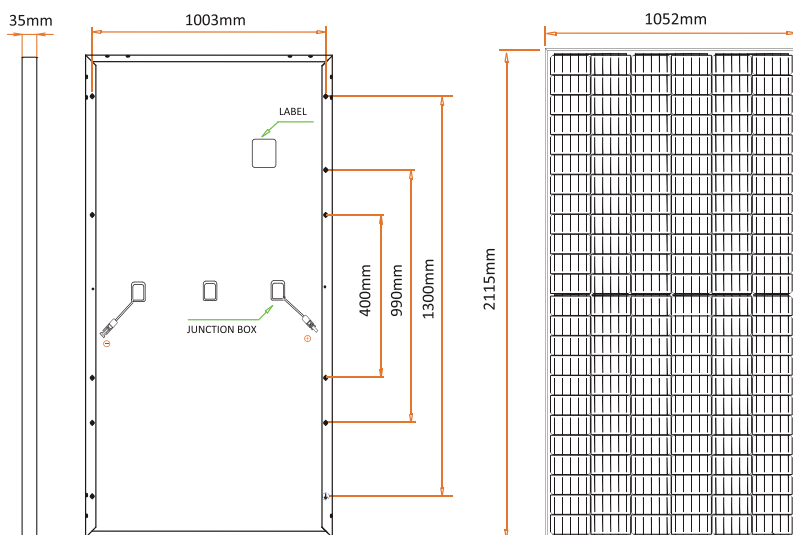
Gamma Series 1500 V System Voltage

- Designed & Engineered to Provide Excellent Low Light and Longer Wavelength Response
- We Use Only Highly Efficient Passivated Emitter Rear Contact (PERC) Technology Cells
- Narrow Power Binning Tolerance
- Extremely Low Light Induced Degradation
- Sustain Heavy Wind & Snow Loads (2400 Pa & 5400 Pa)
- Conforms with IEC 61215:2016, IEC 61730:2016, UL 61730 PV Standards, PID Test

IS 14286 : 2010/ IEC 61215 : 2005,
IS/IEC 61730 (PART 1) : 2004 &
IS/IEC 61730 (PART 2) : 2004

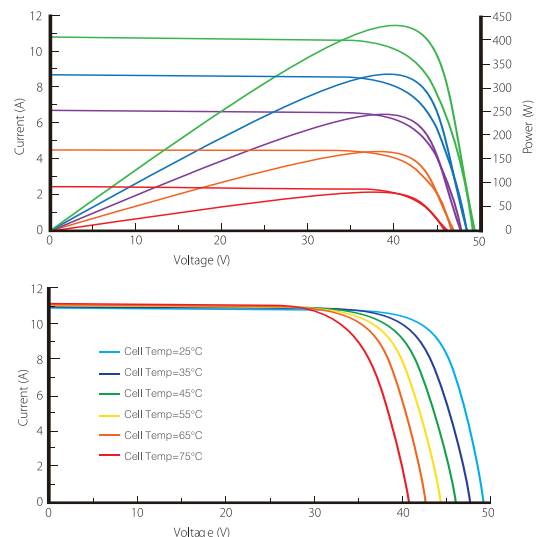


Module Dimensions Diagram



Drawing Only for Reference

Typical I-V Curves



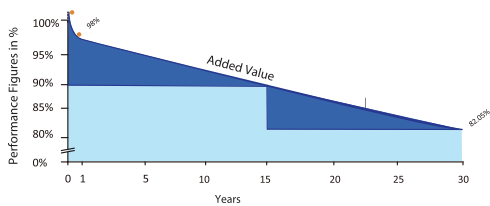
Average relative efficiency reduction of 5% at 200 W/m according to EN 60904-1.

Pennar Industries Limited is one of the leading engineering organizations in India well known for its expertise in providing engineered products & services with our presence in more than 20 Countries across the Globe. An epitome of quality, precision, and perfection, Pennar is driven by an unrelenting desire to excel with experience spanning over three decades.

Product Specifications

Electrical Data [All Data refers to STC (AM 1.5g, 1000 W/m ² , 25°C)]						Electrical Parameters at NOCT						
Peak Power Pmax (0 ~ +5 Wp)	430	435	440	445	450	Module Rating (Wp)	430	435	440	445	450	
Maximum Voltage Vmpp (V)	40.6	40.8	41.0	41.2	41.4	Power (W)	318	322	326	329	333	
Maximum Current Imp (A)	10.60	10.67	10.75	10.81	10.87	V @ Pmax (V)	37.5	37.7	37.9	38.1	38.3	
Open Circuit Voltage Voc (V)	49.2	49.4	49.6	49.8	50.0	I @ Pmax (A)	8.49	8.54	8.59	8.64	8.69	
Short Circuit Current Isc (A)	11.18	11.25	11.33	11.38	11.44	Voc (V)	45.9	46.1	46.3	46.5	46.7	
Module Efficiency (%)	19.33	19.55	19.78	20.00	20.22	Isc (A)	9.00	9.05	9.10	9.15	9.20	
STC:1000 W/m ² Irradiance, 25°C Cell Temperature, AM 1.5g Spectrum according to EN 60904-3 Average Relative Efficiency Reduction of 5% at 200 W/m ² according to EN 60904-1						NOCT Irradiance 800 W/m ² , Ambient Temperature 20°C, AM 1.5, Wind Speed 1 m/sec						
Temperature Coefficients (Tc) [Permissible Operating Conditions]						Mechanical Data						
Tc of Open Circuit Voltage [β]	-0.27% / °C					Length x Width x Height	2115 x 1052 x 35 mm. (83.26 x 41.41 x 1.38 inches)					
Tc of Short Circuit Current [α]	0.048% / °C					Weight	24 Kg (52.91 lbs)					
Tc of Power [γ]	-0.348% / °C					Junction Box	IP68 with Bypass Diodes					
Maximum System Voltage	1500 Volt DC					Cables & Connectors	1200 mm. (47.24 inches) length of cable, MC4 Compatible Connectors					
NOCT	45 Degree Celsius (+/- 2°C)					Application Class	Class A (Safety Class II)					
Temperature Range	-40°C to + 85°C					Superstrate / Glass	4.0 (0.157 inches) / 3.2 mm (0.13 inches) High transmittance low iron tempered glass AR Coat					
Warranty & Certifications						Cells	Mono P-Type, 166 x 166(±1)mm, 144(6x24) Half-Cut cells					
Product Warranty	15 Years					Cell Encapsulant	EVA (Ethylene Vinyl Acetate) Thickness 0.45 mm. +/- 5%					
Performance Warranty**	Linear Power Warranty for 30 Years with 3% for 1st Year Degradation & 0.67% from Year 2 to Year 30					Backsheet	Non – Fluoro Type, UV Stable PET with thickness of 365 microns for 1500V					
Approvals & Certificates	IS 14286*, IS/IEC 61730-1*, IS/IEC 61730-2*, DNV-GL ISO 9001:2015, TUV IATF 16949:2016 (1st Edition, 2016-10-01)					Frame	Anodized Aluminium Frame					
(*) Certifications Under Progress (**) Refer to Pennar Industries Limited Warranty Document for Terms & Conditions						Mechanical Load Test	5400 Pa (Snow Load), 2400 Pa (Wind Load)					
						Maximum Series Fuse Rating	20 A					
						Address						
						Corporate Address:	Pennar Industries Ltd. 9th Floor (West Wing) DHFLVC Silicon Towers Kondapur, Hyderabad Telangana – 500084 (INDIA)			Factory Address: Pennar Industries Ltd. Sy No. 144 & 145, Chandpur Village Sadasivapet, Dist. Sangareddy Telangana – 502291 (INDIA)		
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Performance Warranty



Packaging Information

Domestic	Container Size: 40' HC	Pallets / Container: 16	Pieces / Container: 480	Pennar and accompanying logos are trademarks of Pennar Industries Limited registered in India.							
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CAUTION: READ SAFETY AND INSTALLATION MANUAL BEFORE USING THE PRODUCT.

Specifications included in this datasheet are subject to change without notice. Electrical data without guarantee. Please confirm your exact requirement with the company representative while placing your order

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