

### Endurance™ 315 • 72-Cell Solar Panel

Manufactured for Nishati by Waaree Energy Ltd, Mumbai, India



#### Features

- Superior module efficiency based on international benchmarks
- Positive power tolerance 0 / +5W
- PID free modules with long term reliability
- Glass with anti reflective coating
- Improves light transmission
- Salt mist, Ammonia, blowing sand and hail resistant
- Sustain heavy wind & snow loads
- IP67 rated MC4 compatible connectors
- Excellent performance in low light



25

Years  
Output  
Warranty

10 years Limited Product Warranty  
25 years Limited Power Output Warranty:

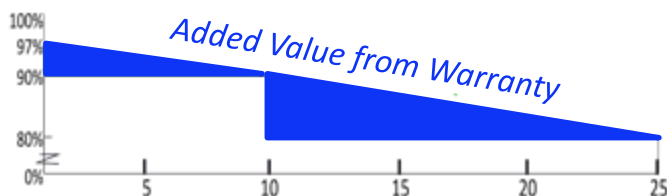
- Minimum 90% at end of 10 years
- Minimum 80% at the end of 25 years



More Than

**500MW**

Module Manufacturing Capacity



Over 20 in house tests

- DH: Damp heat test
- TC: Thermal cycling test
- HF: Humidity freeze test

#### CERTIFICATIONS



ISO 9001:2008 | ISO 14001:2004 | OHSAS 18001:2007

IEC 61215 | IEC 61730-1&2 | UL 1703 | IEC 61701 | IEC 62716

Waaree Energy Ltd is India's top solar PV module manufacturer headquartered in Mumbai. Black & Veatch performed an independent assessment and found Waaree solar panels are bankable by US and International standards. The company vision is to provide high quality and cost-effective solar across global markets -paving the way for a more sustainable energy future, thereby improving quality of human life.

Electrical Characteristics	
Model	WS-315
Nominal Maximum Power, Pm (W)*	315
Power Tolerance	0/+5 W
Open Circuit Voltage, Voc (V)*	45.3
Short Circuit Current, Isc (A)*	9.27
Voltage at Maximum Power, Vmp (V)*	36.8
Current at Maximum Power, Im0 (A)*	8.56
Maximum Voltage (V)	1000 (IEC)
Module Efficiency (%)*	16.23
Maximum Series Fuse Rating (A)	15
Limiting Reverse Current (A)	15
*Under Standard Test Conditions (STC) of 1000 W/m <sup>2</sup> , 1.5 spectrum and 25°C temperature. AM	

Mechanical Characteristics	
Length x Width x Thickness (L x W x T) - mm	1960 x 990 x 42
Mounting Holes Pitch (Y) - mm	1060
Mounting Holes Pitch (X) - mm	942
Weight (kg)	22.5
Solar Cells per Module (Units)/Arrangement	72 / (12 x 6)
Solar Cell Type / Length x Width (mm)	Multi crystalline Silicon / 156 x 156 (6" x 6")
Front Cover (Material/Thickness)	Tempered & Low Iron Glass / 3.2 mm
Encapsulant	EVA
Frame Material	Anodized Aluminum
Junction Box (Protection degree / Type)	IP65 rated / Waterproof PPO enclosure with bypass diodes
No. of bypass diodes	3 or 6
Connector (Protection degree / Type)	IP67 rated / MC4 compatible
Cable (Length / Cross Sectional area)	1100 mm / 4 mm <sup>2</sup>
Packaging	24+24+5 (2 pallets+1 box)
Mechanical load	7500 Pa
Fire safety class	C
Safety application class	A
Safety class	II

Thermal Characteristics		
Temperature coefficient of Current (Isc),	$\alpha$ (%/°C)	0.0681
Temperature coefficient of Current (Voc),	$\beta$ (%/°C)	-0.2941
Temperature coefficient of Current (Pm),	$\nu$ (%/°C)	-0.3845
NOCT (°C)		46 ± 2
Operating temperature range (°C)		-40 to 85

