

SOLAR PANELS

Our Solar Photovoltaic (PV) Panels are designed for large on- and off-grid electrical power requirements. and offershigh performance of power per square foot of solar array. The panels may be used as components of larger systems to generate electricity in both residential and commercial settings.

We offer performance guarantees for 25 years with a separate quality guarantee for 10 years, depending on product. All our products have the highest certifications such as TÜV, UL, CE, VDE, ISO

#### **Product Characteristics:**

- •100% EOL inspection, ensuring modules are free from defects
- •Modules incorporate high performance bypass diodes to minimize the power drop caused by shading
- •Outstanding performance in low-light irradiance environments
- •Excellent mechanical load resistance: Certified to withstand high wind loads (2400pa) and snow loads (5400pa)
- •High salt and ammonia resistance
- •Positive power tolerance: 0-+5w
- •10-years 90% of Min. rated output power and 25-years 80% of Min. rated output power warranty

### **Manufacturer Characteristics:**

Founded in 1984, one of the largest State-Owned Group Corporations of Building & Mechanical Materials Specialization in Design, Manufacturing, and Distribution of Cement, Composite Materials, New Building Materials, and Green Products, with priority given to Solar and Wind Energy Development Projects Clients in over 120 countries throughout the world, including Mexico, Argentia, Chile, India, USA, Canada, Europe, England, Middle East, Africa, Australia, Asia

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Entered into the Green Space in 2005. Annual Capacity is 500MW Solar Panel and 500MW Solar Cell







The opto-electrical specifications shown below are stabilized values being measured at Standard Test Conditions of Multicrystalline Silicon Solar Panels. Irradiance: 1000W/m2; Spectrum AM1.5 at 25°C. The info below is subject to manufacturing tolerances. Where appropriate minutes of measurement are available and are used for the dimensioning of the installation.



## **MONOCRYSTALLINE SILICON SOLAR PANELS SUMMARY**



### Monocrystalline Silicon Solar Panel 10W-50W

<ul><li>Max Power Voltage Vmp(V)</li></ul>	17.6	17.6	18.0	17.6	17.4
<ul> <li>Max Power Current Imp(A)</li> </ul>	0.57	1.14	1.67	2.27	2.87
<ul><li>Open Circuit Voltage Voc (V)</li></ul>	22.2	22.2	22.6	22.2	22.2
<ul> <li>Short Circuit Current Isc(A)</li> </ul>	0.62	1.24	1.77	2.47	3.15
<ul><li>Max Power Pm(W)</li></ul>	10	20	30	40	50



### Monocrystalline Silicon Solar Panel 60W-85W

<ul> <li>Max Power Voltage Vmp(V)</li> </ul>	18.0	18.2	17.4	17.6	17.8
<ul> <li>Max Power Current Imp(A)</li> </ul>	3.33	3.57	4.31	4.55	4.78
<ul> <li>Open Circuit Voltage Voc (V)</li> </ul>	22.6	21.8	22.0	22.2	22.4
<ul> <li>Short Circuit Current Isc(A)</li> </ul>	3.54	3.80	4.73	4.94	5.13
<ul><li>Max Power Pm(W)</li></ul>	60	65	75	80	85



### Monocrystalline Silicon Solar Panel 90W-130W

<ul> <li>Max Power Voltage Vmp(V)</li> </ul>	18.0	18.2	17.4	18.0	18.2
<ul> <li>Max Power Current Imp(A)</li> </ul>	5.0	5.22	5.75	6.67	7.14
<ul> <li>Open Circuit Voltage Voc (V)</li> </ul>	22.6	22.8	22.0	22.6	22.8
<ul> <li>Short Circuit Current Isc(A)</li> </ul>	5.13	5.31	6.29	7.08	7.60
<ul><li>Max Power Pm(W)</li></ul>	90	95	100	120	130



### Monocrystalline Silicon Solar Panel 330W-360W

<ul><li>Max Power Voltage Vmp(V)</li></ul>	38.4	38.6	38.8	38.9	39.0	39.2	39.3
<ul> <li>Max Power Current Imp(A)</li> </ul>	8.59	8.68	8.76	8.87	8.97	9.06	9.16
<ul> <li>Open Circuit Voltage Voc (V)</li> </ul>	47.3	47.6	47.8	48.0	48.1	48.3	48.6
<ul> <li>Short Circuit Current Isc(A)</li> </ul>	9.11	9.20	9.29	9.40	9.51	9.60	9.70
<ul><li>Max Power Pm(W)</li></ul>	330	335	340	345	350	355	360



### Monocrystalline Silicon Solar Panel 340W-370W

<ul> <li>Max Power Voltage Vmp(Y)</li> </ul>	38.8	38.9	39.0	39.2	39.3	39.4
<ul> <li>Max Power Current Imp(A)</li> </ul>	8.76	8.87	8.97	9.06	9.16	9.40
<ul> <li>Open Circuit Voltage Voe (V)</li> </ul>	47.8	48.0	48.1	48.3	48.6	48.7
<ul> <li>Short Circuit Current Iso(A)</li> </ul>	9.29	9.40	9.51	9.60	9.70	9.91
<ul><li>Max Power Pm(W)</li></ul>	340	345	350	355	360	370



### Monocrystalline Silicon Solar Panel 380W-390W

<ul> <li>Max Power Voltage Vmp(V)</li> </ul>	39.73	39.85	39.98
<ul> <li>Max Power Current Imp(A)</li> </ul>	9.57	9.67	9.76
<ul> <li>Open Circuit Voltage Voe (V)</li> </ul>	47.58	47.68	47.77
<ul> <li>Short Circuit Current IsO(A)</li> </ul>	9.98	10.09	10,20
<ul><li>Max Power Pm(W)</li></ul>	380	385	390



### Monocrystalline Silicon Solar Panel 440W-450W

<ul> <li>Max Power Votlage Vmp(V)</li> </ul>	41.1	41.3	41.5
<ul> <li>Max Power Current Imp(A)</li> </ul>	10.71	10.78	10.85
<ul> <li>Open Cirruit Voltage Voe (V)</li> </ul>	48.9	49.1	49.3
<ul> <li>Short Circuit Current (so(A))</li> </ul>	11.46	11.53	11.60
<ul><li>Max Power Pm(W)</li></ul>	440	445	450



### Monocrystalline Silicon Solar Panel 530W-545W

<ul> <li>Max Power Voltage Vmp{V)</li> </ul>	41.45	41.61	41.77
<ul> <li>Max Power Current Imp(A)</li> </ul>	12.91	12.98	13.05
<ul> <li>Open Circuit Voltage Voe (V)</li> </ul>	49.31	49.46	49.61
<ul> <li>Short Circuit Current Isc(A)</li> </ul>	13.79	13.86	13.93
<ul> <li>Max Power Pm(W)</li> </ul>	535	540	545



## **Monocrystalline 275W-300W**

## RAW MATERIALS AND MECHANICAL PARAMETERS

Type of Cells (mm)	mono 156.75 x 156.75		
No. of Cells and Connections	6x 10=60		
Dimensions (mm)(L*W*H)	1640 x 992 x 35/40		
Weight (kg)	17.9/18.2		
Glass	3.2mmTempered Glass		
Encapsulation	EVA		
Backsheet	Multilayer Composite		
Aluminium-Frame	Silvery/Black Anodized Aluminium Alloy		
Junction-Box	IP65/IP67		
Cable	4mm2, 900mm		
Connector	MC4 and MC4 Compatible		
Package Configuration	30/26pcs/pallet		
40GP	840 pcs (30 Pallet) 728 pcs (26/Pallet)		
40HQ	896 pcs (30/Pallet) 784 pcs (26/Pallet)		

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Maximum System Voltage	1000V
Operating Temperature	-45-+80'C
Maximum Series Fuse	10A
Maximum Static Load, Front Side (e.x. Snow, Wind)	5400Pa
Maximum Static Load, Back Side (e.x. Wind)	2400Pa
Application Grade	Class A

Rated Maximum Power (Mp)	275W	280W	285W	290W	295W	300W
Power Tolerance	0-+5W					
Module Efficiency	16.90	17.21%	17.52%	17.83%	18.13%	18.44%
Open Circuit Voltage (Voc)	38.5V	38.7V	39.0V	39.2V	39.5V	39.7V
Maximum Power Voltage (Vmp)	31.2V	31.4V	31.6V	31.8V	32.0V	32.2V
Short Circuit Current (Isc)	9.34V	9.45V	9.56V	9.67V	9.77V	9.88V
Maximum PowerCurrent (Imp)	8.81A	8.92A	9.02A	9.12A	9.22A	9.32A
Temperature Coefficient of Isc			+0.0	06%		
Temperature Coefficient of Voe	-0.32%					
Temperature Coefficient of Pmp	-0.45%					
Standard Test Condition	Irradiance	:1000W/M	2, Cell Tem	perature:2	5'C, Spectru	ımAM: 1.5

# **Monocrystalline 330W-360W**

RAW MATERIALS AND MECHANICAL PARAMETERS					
Type of Cells (mm)	mono 156.75 x 156.75				
No. of Cells and Connections	6x 12=72				
Dimensions (mm)(L*W'H)	1956x992x40				
Weight (kg)	23.2				
Glass	3.2mm Tempered Glass				
Encapsulation	EVA				
Backsheet	Multilayer Composite				
Aluminium-Frame	Silvery/Black Anodized Aluminium Alloy				
Junction-Box	IP65/IP67				
Cable	4mm2, 900mm				
Connector	MC4 and MC4 Compatible				
Package Configuration	26pcs/pallet				
40GP	624pcs				
40HQ	672pcs				

PERFORMANCE PARAMETERS			
Maximum System Voltage	1000V		
Operating Temperature	-45-+80'C		
Maximum Series Fuse	10A		
Maximum Static Load, Front Side (e.x. Snow, Wind)	5400Pa		
Maximum Static Load, Back Side(e.x. Wind)	2400Pa		
Application Grade	Class A		

ELECTRICAL PAR	ELECTRICAL PARAMETERS (STANDARD TEST CONCLUSION)						
Rated Maximum Power (Mp)	330W	335W	340W	345W	350W	355W	360W
Power Tolerance				0-+5W			
Module Efficiency	17.01%	17.26%	17.52%	17.78%	18.04%	18.30%	18.55%
Open Circuit Voltage (Voc)	47.3V	47.6V	47.8	48.0V	48.1V	48.3V	48.6V
Maximum Power Voltage (Vmp)	38.4V	38.6V	38.8V	38.9V	39.0V	39.2V	39.3V
Short Circuit Current (lsc)	9.11A	9.20A	9.29A	9.40A	9.51A	9.60A	9.70A
Maximum PowerCurrent (Imp)	8.59A	8.68A	8.76A	8.87A	8.97A	9.06A	9.16A
Temperature Coefficient of Isc				+0.06%			
Temperature Coefficient of Voe		-0.32%					
Temperature Coefficient of Pmp	-0.45%						
Standard Test Condition	Irrad	Irradiance:1000W/M2, Cell Temperature:25'C, Spectrum AM: 1.5					

# **Monocrystalline 340W-370W**

# RAW MATERIALS AND MECHANICAL PARAMETERS

Type of Cells(mm)	mono 156.75 x 156.75				
No. of Cells and Connections	6x 12=72				
Dimensions (mm)(L*W'H)	1956 x 992 x 40				
Weight(kg)	23.2				
Glass	3.2mm Tempered Glass				
Encapsulation	EVA				
Backsheet	Multilayer Composite				
Aluminium-Frame	Silvery/Black Anodized Aluminium Alloy				
Junction-Box	IP65/IP67				
Cable	4mm2, 900mm				
Connector	MC4 and MC4 Compatible				
Package Configuration	26pcs/pallet				
40GP	624pcs				
40HQ	672pcs				

PERFORMANCE PARAMETERS		
Maximum System Voltage	1500V	
Operating Temperature	-45-+80'C	
Maximum Series Fuse	10A	
Maximum Static Load, Front Side (e.x. Snow, Wind)	5400Pa	
Maximum Static Load, Back Side (e.x. Wind)	2400Pa	
Application Grade	Class A	

ELECTRICAL PARAMETERS (STANDARD TEST CONCLUSION)							
Rated Maximum Power (Mp)	340W	345W	350W	355W	360W	370W	
Power Tolerance			0-+	5W	•	•	
Module Efficiency	17.52%	17.78%	18.04%	18.30%	18.55%	19.10%	
Open Circuit Voltage (Voc)	47.8V	48.0V	48.1V	48.3V	48.6V	48.7V	
Maximum Power Voltage (Vmp)	38.8V	38.9V	39.0V	39.2V	39.3V	39.4V	
Short Circuit Current (Isc)	9.29A	9.29A 9.40A 9.51A 9.60A 9.70A 9.91A					
Maximum PowerCurrent (Imp)	8.76A	8.87A	8.97A	9.06A	9.16A	9.40A	
Temperature Coefficient of lsc		+0.06%					
Temperature Coefficient of Voe		-0.32%					
Temperature Coefficient of Pmp		-0.45%					
Standard Test Condition	Irradiance	Irradiance:1000W/M2, Cell Temperature:25'C, SpectrumAM: 1.5					

## Monocrystalline 375W-390W

## RAW MATERIALS AND MECHANICAL PARAMETERS

Type of Cells (mm)	mono 156.75 x 156.75			
No. of Cells and Connections	6x12=72			
Dimensions(mm)(L *W'H)	1956 x 992 x 40			
Glass	3.2mm Tempered Glass			
Weight (kg)	23.2			
Encapsulation	EVA			
Backsheet	Multilayer Composite			
Aluminium-Frame	Silvery/Black Anodized Aluminium Alloy			
Junction-Box	IP65/IP67			
Cable	4mm2, 900mm			
Connector	MC4 and MC4 Compatible			
Package Configuration	26pcs/pallet			
40GP	624pcs			
40HQ	672pcs			

PERFORMANCE PARAMETERS		
Maximum System Voltage	1000V	
Operating Temperature	-45-+80'C	
Maximum Series Fuse	20A	
Maximum Static Load, Front Side (e.x. Snow, Wind)	5400Pa	
Maximum Static Load, Back Side (e.x. Wind)	2400Pa	
Application Grade	Class A	

Module Type	375W	380W	385W	390W
Test Condition				
Rated Maximum Power (Mp)	17.01%	17.26%	17.52%	17.78%
Maximum Power Voltage (Vmp)	38.4V	38.6V	38.8V	38.9V
Maximum Power Current (Imp)				
Open Circuit Voltage (Voc)	47.3V	47.6V	47.8V	48.0V
Short Circuit Current (Isc)	9.11A	9.20A	9.29A	9.40A
Module Efficiency (%)	8.59A	8.68A	8.76A	8.87A
Temperature Coefficient of Isc	+0.06%			
Temperature Coefficient of Voc	-0.32%			
Temperature Coefficient of Pmp	-0.45%			
Standard Test Condition	Irradiance:1000W/M2, Cell Temperature:25'C,			

## **Monocrystalline 380W-390W**

## **RAW MATERIALS AND MECHANICAL PARAMETERS**

Type of Cells (mm)	mono 158.75 x 158.75			
NO. of Cells and Connections	6x 12=72			
Dimensions(mm)(L *W'H)	1979 x 1002 x 40			
Glass	3.2mm Tempered Glass			
Weight (kg)	23			
Encapsulation	EVA			
Backsheet	Multilayer Composite			
Aluminium-Frame	Silvery/Black Anodized Aluminium Alloy			
Junction-Box	IP65/IP67			
Cable	4mm2, 900mm			
Connector	MC4 and MC4 Compatible			
Package Configuration	26pcs/pallet			
40HQ	638 pcs			

## **PERFORMANCE PARAMETERS**

Maximum System Voltage	1500V
Operating Temperature	-40-+80'C
Maximum Series Fuse	30A
Maximum Static Load, Front Side (e.x. Snow, Wind)	5400Pa
Maximum Static Load, Back Side (e.x. Wind)	2400Pa
Application Grade	Class A

Rated Maximum Power (Mp)	380W	385W	390W		
Power Tolerance	0 - +5W				
Module Efficiency (%)	19.19%	19.44%	19.69%		
Open Circuit Voltage (Voc)	47.58V	47.68V	47.77V		
Rated Maximum Power (Mp)	17.26%	17.52%	17.78%		
Maximum Power Voltage (Vmp)	39.73V	39.85V	39.98V		
Short Circuit Current (lsc)	9.98A	10.09A	10.20A		
Maximum Power Current (Imp)	9.57A 9.67A 9.76A				
Temperature Coefficient of lsc	+0.06%				
Temperature Coefficient of Voc	-0.32%				
Temperature Coefficient of Pmp	-0.45%				
	Irradiance:1000W/M2, Cell				
Standard Test Condition	Temperature:25'C, Spectrum AM: 1.5				

# **Halt-Cut Monocrystalline Silicon Module 375W-390W**

## RAW MATERIALS AND MECHANICAL PARAMETERS

No. of Cells and Connections	6x 24 = 144		
Dimensions (mm)(L *W'H)	2094 x 1038 x 35		
Weight (kg)	23.5		
Glass	3.2mm Tempered Glass		
Encapsulation	EVA		
Backsheet	Multilayer Composite		
Aluminium-Frame	Silvery/Black Anodized Aluminium Alloy		
Junction-Box	IP68		
Cable	4mm2, 300mm (length can be customize		
Connector	MC4 and MC4 Compatible		
20HQ	150 pcs		
40HQ	660 pcs		

PERFORMANCE PARAMETERS		
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Maximum System Voltage	1500V	
Operating Temperature	-40-+85'C	
Maximum Series Fuse	20A	
Maximum Static Load, Front Side (e.x. Snow, Wind)	5400Pa	
Maximum Static Load, Back Side(e.x. Wind)	2400Pa	
Application Grade	Class A	

ELECTRICAL PARAMETERS (STANDARD TEST CONCLUSION)				
Rated Maximum Power (Mp)	440W	445W	450W	
Power Tolerance	0-+5W			
Module Efficiency	20.2%	20.5%	20.7%	
Open Circuit Voltage (Voc)	48.9V	49.1V	49.3V	
Maximum Power Voltage (Vmp)	41.1V	41.3V	41.5V	
Short Circuit Current (lsc)	11.46A	11.53A	11.6A	
Maximum PowerCurrent (Imp)	10.71	10.78A	10.85A	
Temperature Coefficient of Isc	+0.048%			
Temperature Coefficient of Voe	-0.27%			
Temperature Coefficient of Pmp	-0.35%			
Standard Test Condition	Irradiance:1000W/M2, Cell Temperature:25'C, SpectrumAM: 1.5			

## **Monocrystalline Silicon Module 535W - 545W**

### **RAW MATERIALS AND MECHANICAL PARAMETERS**

No. of Cells and Connections	144 (2 x (6*12))		
Dimensions (mm)(L*W'H)	2256 x 1133 x 35		
Weight(kg)	32		
Glass	3.2mm Tempered Glass		
Encapsulation	EVA		
Backsheet	Multilayer Composite		
Aluminium-Frame	Silvery/Black Anodized Aluminium Alloy		
Junction-Box	IP68		
Cable	4mm2, 400mm (length can be customize		
Connector	MC4 and MC4 Compatible		
40HQ	660 pcs		

PERFORMANCE PARAMETERS		
Maximum System Voltage	1500V	
Operating Temperature	-40-+85'C	
Maximum Series Fuse	25A	
Maximum Static Load, Front Side (e.x. Snow, Wind)	5400Pa	
Maximum Static Load, Back Side(e.x. Wind)	2400Pa	
Application Grade	Class A	

Rated Maximum Power (Mp)	535Q	540W	545W	
Power Tolerance	0-+5W			
Module Efficiency	20.93%	21.13%	21.32%	
Open Circuit Voltage (Voc)	49.31V	49.46V	49.61V	
Maximum Power Voltage (Vmp)	41.45V	41.61V	41.77V	
Short Circuit Current (lsc)	13.79A	13.86A	13.93A	
Maximum PowerCurrent (Imp)	12.91A	12.98A	13.05A	
Temperature Coefficient of Isc	+0.048%			
Temperature Coefficient of Voe	-0.29%			
Temperature Coefficient of Pmp	-0.36%			
Standard Test Condition	Irradiance:1000W/M2, Cell			
	Temperature:25 <sup>1</sup> C, Spectrum AM: 1.5			

