DHOOP

POWERING A BRIGHTER FUTURE NATURALLY







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Agrawal
GROUP. GOA
SMARTEST ENERGY
CHOICE UNDER THE SUN

INTRODUCTION

Agrawal Renewable Energy Pvt Ltd. is the flagship company of Agrawal Group, founded in 1950 by Mr. Gangadhar N. Agrawal. It has India’s largest Solar Panels Module manufacturing plant in Goa. Agrawal Renewable Energy is amongst the top player in India in providing Solar PV Panels, Home lighting system, Solar rooftop solutions, and solar water pumping system. Agrawal Renewable Energy has its presence in over nationally and internationally.

MANAGEMENT TEAM

Mr. Krishnakumar Agrawal

President
B.Sc (Goa) & MBA (UK)

Mr. Anirudh Agrawal

Managing Director
B.E Mechanical (Goa)
& MBA General Management
Washington DC (USA)

Mr. Anurag Agrawal

Vice President & Director
B.E Electronics & Telecom (Goa)
& MS-MBA Info Systems &
Finance (Boston USA)

WHO WE ARE

FOUNDER

Founded in 1950 by Mr. Gangadhar N. Agrawal

OUR VISION

To become large Player focusing into core sector and reaching global scale with environment friendly and green projects.

OUR MISSION

To contribute in national economy and social need.

OUR VALUES

Main emphasis on quality, integrity and commitments.

PATH OF SUCCESS

Agrawal Group of Companies was founded in 1950 by Mr. Gangadhar N. Agrawal. The company started with iron ore, bauxite and manganese mining and produced first self-designed ore beneficiation unit of its kind in Goa. The company also built barges in Goa.

The Company's main line of business are:

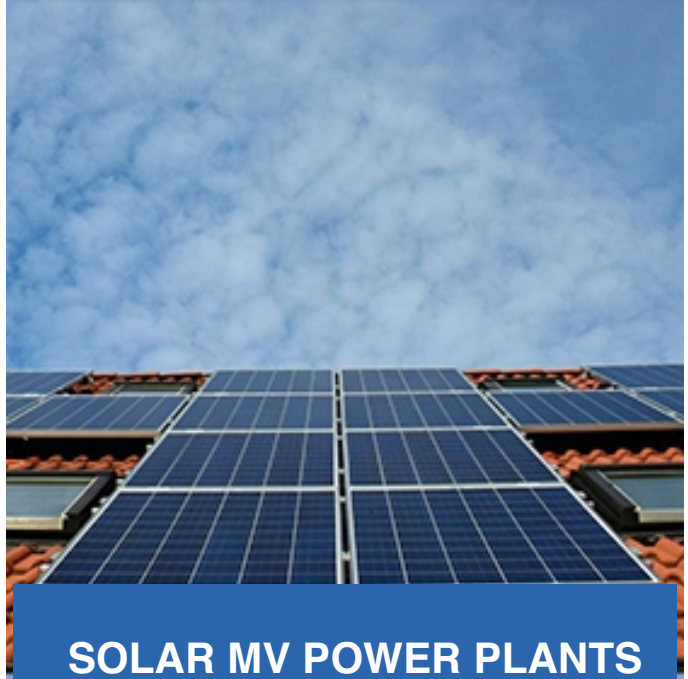
- Iron ore mining and export
- Real estate development and construction
- Wind power generation
- Shipping, Shipbuilding and Stevadoring
- Solar power turnkey project development and power generation
- Manufacture of rubber products
- Farming Education
- Pharmaceuticals manufacturing
- Hotel Industry


PRODUCT
&
SERVICES
Solar PV Panels
Solar MV Power Plants
EPC
Solar All in one
Solar Water Pumping System
Solar Home Lightning System
Solar Rooftops

SOLAR PV PANELS

Photovoltaic modules use light energy (photons) from the Sun to generate electricity through the photovoltaic effect. Most modules use wafer-based crystalline silicon cells or thin-film cells. The structural (load carrying) member of a module can be either the top layer or the back layer. Cells must be protected from mechanical damage and moisture. Most modules are rigid, but semi-flexible ones based on thin-film cells are also available.

- Polycrystalline Modules
- Monocrystalline Modules
- Twinpeak Modules
- Bificial Modules



SOLAR MV POWER PLANTS

Solar photovoltaic systems, commonly referred to as solar PV systems, convert sunlight directly into electricity. This is different to the solar thermal collectors for solar water heaters. A solar PV system can help reduce carbon emissions and your electricity bill by producing sustainable electricity from the sun instead of burning fossil fuels.

Most electricity is distributethrough an electrical utility provider, the company that produces and/or distributes electricity to consumers.

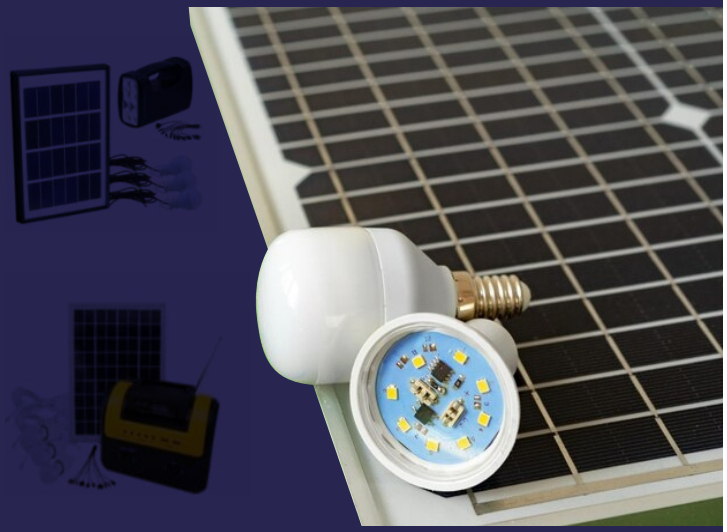
SOLAR ALL IN ONE

3 Lighting Mode for choosing,PIR Motion Sensor for Energy Saving,ALS2.0 + VFT + TCS Technology for All Night Lighting even in Cloudy or Rainy Day.

Applications:Courtyard/Garden Park/Street/Roadway/ pathway/Parking Lot/Private road/Sidewalk/Public square/ Plaza/Campus/Airfield/Farm & Ranch/Perimeter Security/ Wildlife area/Remote Area/Military Base

Solar Home Lightning System

DHOOP – 15N
Specification:
Solar Panel: 3W/9V with 5 meter cable, Battery Capacity: 4Ah lead acid battery, LED Bulb: 1W/6V 3PCS Working Time: 4 hours. Charging Time: 6 hours, Accessory: 1*5 type mobile phone charger, AC charger cable



DHOOP – 0603
Specifications:
Solar Panel: 5W/9V with 5 meter cable, Battery Capacity: 4Ah lead acid battery. LED Bulb: 1*3W/6V, 2*1W/6V DC Output Value: 12 VDC USB Output: 5 VDC/1.5 A, Accessory: 1*5 type mobile phone charger, AC charger cable, Color: Yellow, Green, Blue, Red

Solar Rooftops

Rooftop solar panels rely on the ability of the solar cells to harness the energy of the sun and convert it to electricity. It is a small, square-shaped semiconductor that is made from conductive materials such as silicon. When sunlight strikes the solar cells, it induces chemical reactions that release the electrons, thus generating electric current.

A rooftop photovoltaic power station, or rooftop PV system, is a photovoltaic system that has its electricity generating solar panels mounted on the rooftop of a residential or commercial building. The various components of such a system include, photovoltaic modules, mounting systems, cables, solar inverters and other electrical accessories

Solar Water Pumping System

Key Features
60/72 cells Polycrystalline solar PV module
Applications
Superior Module Efficiency as per International Benchmarks, Positive Power Tolerance 0 / + 5W, PID Resistant Modules. Glass with Anti

Reflective Coating (Improves light transmission), Salt mist, Ammonia and Hail Resistant, Sustain Heavy Wind & Snow loads (2400 Pa & 5400 Pa), System voltage: 1500VDC to reduce the BOS cost, Module binned by current to improve system performance

EPC Work

As a developer (EPC) contractor with an extensive network, we are geared toward private and institutional investors, as well as project developers and owners of large properties in India.

We offer Rooftop and Ground mounted projects for off-grid as well as on grid systemsWe offer our services for:Utility scale Solar Power Plants (Grid connected), Roof Top PV solution (Off grid & Grid Interactive System),Water pumping System, Home Lighting System, Street Light etc.

DHOOP PP36 30mm SERIES POLY

KEY FEATURES:

- BIS and IEC Certified modules.
- High conversion efficiency.
- Designed with new generation PERC technology
- Positive Tolerance Always
- 100% EL tested module to ensure micro crack free modules
- 10 years output power warranty

DHOOP PP36 Cell 30MM SERIES POLY

Electrical parameters at Standard Test Conditions (STC)								
DHOOP PP36 Series								
Power output	Pmax	W	40	50	60	75	100	150
Power output tolerances	ΔPmax		Positive Tolerance Only					
Module efficiency	nm	%	13.56	13.44	13.77	14.35	14.70	15.07
Voltage at P_{max}	Vmpp	V	18.01	18.09	18.14	18.22	18.35	18.50
Current at P_{max}	Impp	A	2.18	2.77	3.31	4.29	5.46	8.10
Open-circuit voltage	Voc	V	21.37	21.47	21.72	21.77	21.97	22.48
Short-circuit current	Isc	A	2.50	3.10	3.70	4.70	5.90	8.62
Dimension	mm		440*670*30	555*670*30	650*670*30	780*670*30	1015*670*30	1485*670*30
Weight	kgs		4	5.5	7.5	8	10	13.5
Packaging	nos		1 X 5	1 X 5	1 X 5	1 X 5	1 X 5	1 X 5

THERMAL CHARACTERISTICS

Nominal operating cell temperature	NOCT	°C	46 +/- 2
Temperature coefficient of P_{max}	Y	%/°C	-0.38
Temperature coefficient of V_{oc}	B_{Voc}	%/°C	-0.28
Temperature coefficient of I_{sc}	A_{Isc}	%/°C	0:0051
Temperature coefficient of V_{mp}	B_{Vmpp}	%/°C	-0.45

STC: 1000W/m2 Irradiance, 25° C Cell temperature, AM1.5 g spectrum according to EN 60904-3. Average realtive eciency reduction of 5% at 200W/m2 according to EN60904-1

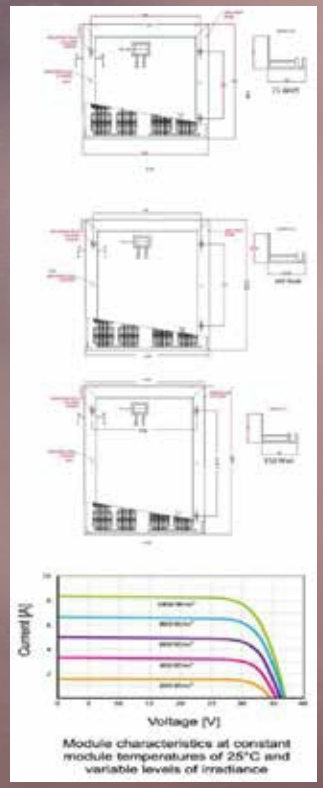
OPERATING CONDITIONS

Max. system voltage	600V_{DC}
Max. series fuse rating	10A
Limiting reverse current	10A
Operating temperature range	-40°C to 85°C
Max. static load, front(e.g., snow and wind)	5400Pa
Max. static load, back (e.g., wind)	2400Pa
Max. hailstone impact (diameter / velocity)	25mm / 23m/s

CONSTRUCTION MATERIALS

Front cover (material / thickness)	low-iron tempered glass / 3.2mm
Cell (quantity / material / dimensions / number of busbars)	36 /multi-crystalline silicon / cut size x 157 mm / 5BB
Encapsulate (material)	PID free ethylene vinyl acetate (EVA)
Frame (material / color / anodization color / edge sealing)	anodized aluminum alloy / silver / clear / silicone or tape
Junction box (protection degree)	TUV certified IP67 rated / Weatherproof PPO enclosure with bypass diodes
Cable (length / cross-sectional area)	As per customer requirement
Plug connector (type / protection degree)	As per customer requirement

Certicates & Approvals



Module characteristics at constant module temperatures of 25°C and variable levels of irradiance

DHOOP PP48 35mm SERIES POLY

KEY FEATURES:

- BIS and IEC Certified modules.
- High conversion efficiency.
- Designed with new generation PERC technology
- Positive Tolenrance Always
- 100% EL tested module to ensure micro crack free modules
- 25 years output power warranty

DHOOP PP48 Cell 35MM SERIES POLY

Electrical parameters at Standard Test Conditions (STC)								
DHOOP PP48 Series								
Power output	Pmax	W	210	215	220	225	230	235
Power output tolerances	ΔPmax		Positive Tolerance Only					
Module efficiency	nm	%	15.89	16.27	16.64	17.02	17.40	17.78
Voltage at P_{max}	Vmpp	V	25.39	25.53	25.71	26.00	26.11	26.41
Current at P_{max}	Impp	A	8.30	8.43	8.56	8.66	8.81	8.9
Open-circuit voltage	Voc	V	30.09	30.16	30.31	30.52	30.97	31.19
Short-circuit current	Isc	A	8.85	8.96	9.01	9.07	9.16	9.25

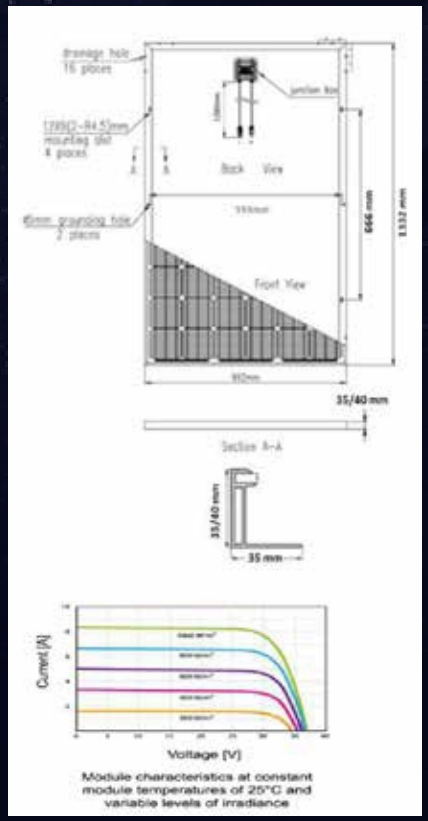
THERMAL CHARACTERISTICS

Nominal operating cell temperature	NOCT	°C	46 +/- 2
Temperature coefficient of P_{max}	Y	%/°C	-0.38
Temperature coefficient of v_{oc}	B_{Voc}	%/°C	-0.27
Temperature coefficient of I_{sc}	A_{Isc}	%/°C	0.0051
Temperature coefficient of V_{mp}	B_{Vmpp}	%/°C	-0.45

STC: 1000W/m2 Irradiance, 25° C Cell temperature, AM1.5 g spectrum according to EN 60904-3. Average realtive eciency reduction of 5% at 200W/m2 according to EN60904-1

OPERATING CONDITIONS

Max. system voltage	1000V DC
Max. series fuse rating	20A
Limiting reverse current	20A
Operating temperature range	-40°C to 85°C
Max. static load, front(e.g., snow and wind)	5400Pa
Max. static load, back (e.g., wind)	2400Pa
Max. hailstone impact (diameter / velocity)	25mm / 23m/s



Module characteristics at constant module temperatures of 25°C and variable levels of irradiance

CONSTRUCTION MATERIALS

Front cover (material / thickness)	low-iron tempered glass / 3.2mm
Cell (quantity / material / dimensions / number of busbars)	48 /multi-crystalline silicon / 157mm x 157 mm / 5
Encapsulate (material)	PID free ethylene vinyl acetate (EVA)
Frame (material / color / anodization color / edge sealing)	anodized aluminum alloy / silver / clear / silicone or tape
Junction box (protection degree)	TUV certified IP67 rated / Weatherproof PPO enclosure with 3 bypass diodes
Cable (length / cross-sectional area)	TUV certified cable with length 1.25m / 4mm2
Plug connector (type / protection degree)	Mc4 or compatible

PACKAGING SPECIFICATIONS

Number of modules per pallet	30
Number of pallets per 20' Vehicle	14
Packaging box dimensions (L / W / H)	1345mm / 1060mm / 1005 mm
Box weight	410

GENERAL CHARACTERISTICS

Dimensions (L / W / H)	1332mm / 992mm / 35mm
Weight	16.4kg

Certicates & Approvals

DHOOP PP60 35mm SERIES POLY

KEY FEATURES:

- BIS and IEC Certified modules
- High conversion efficiency
- Designed with new generation PERC technology
- 1500V Module
- Postive Tolerance Always
- 100% EL tested module to ensure micro crack free modules
- 25 years output power warranty

DHOOP PP60 Cell 35mm SERIES POLY

Electrical parameters at Standard Test Conditions (STC)								
DHOOP PP60 Series								
Power output	Pmax	W	250	255	260	265	270	275
Power output tolerances	ΔPmax		Positive Tolerance Only					
Module efficiency	nm	%	15.16	15.46	15.76	16.07	16.37	16.67
Voltage at P_{max}	Vmpp	V	31.15	31.30	31.35	31.45	31.60	31.80
Current at P_{max}	Impp	A	8.05	8.15	8.30	8.45	8.55	8.65
Open-circuit voltage	Voc	V	37.10	37.50	37.80	37.90	38.00	38.15
Short-circuit current	Isc	A	8.90	9.00	9.10	9.15	9.20	9.25

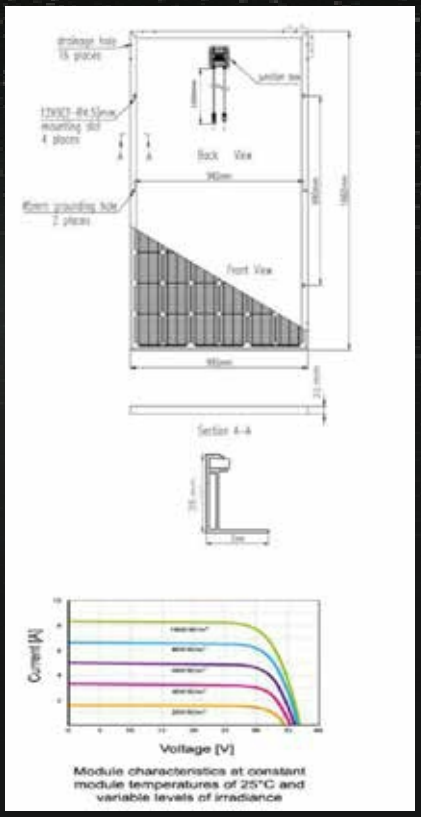
THERMAL CHARACTERISTICS

Nominal operating cell temperature	NOCT	°C	46 +/- 2
Temperature coefficient of P_{max}	Y	%/°C	-0.38
Temperature coefficient of V_{oc}	B_{Voc}	%/°C	-0.27
Temperature coefficient of I_{sc}	A_{Isc}	%/°C	0.0051
Temperature coefficient of V_{mp}	B_{Vmpp}	%/°C	-0.45

STC: 1000W/m2 Irradiance, 25° C Cell temperature, AM1.5 g spectrum according to EN 60904-3. Average realtive eciency reduction of 5% at 200W/m2 according to EN60904-1

OPERATING CONDITIONS

Max. system voltage	$1000V_{DC}$
Max. series fuse rating	20A
Limiting reverse current	20A
Operating temperature range	-40°C to 85°C
Max. static load, front(e.g., snow and wind)	5400Pa
Max. static load, back (e.g., wind)	2400Pa
Max. hailstone impact (diameter / velocity)	25mm / 23m/s



Module characteristics at constant module temperatures of 25°C and variable levels of irradiance

CONSTRUCTION MATERIALS

Front cover (material / thickness)	low-iron tempered glass / 3.2mm
Cell (quantity / material / dimensions / number of busbars)	48 /multi-crystalline silicon / x 157 mm x 157mm / 5
Encapsulate (material)	PID free ethylene vinyl acetate (EVA)
Frame (material / color / anodization color / edge sealing)	anodized aluminum alloy / silver / clear / silicone or tape
Junction box (protection degree)	TUV certified IP67 rated / Weatherproof PPO enclosure with 3 bypass diodes
Cable (length / cross-sectional area)	TUV certified cable with length 1.25m / 4mm2
Plug connector (type / protection degree)	MC4 or compatible

PACKAGING SPECIFICATIONS

Number of modules per pallet	30
Number of pallets per 20' Vehicle	10
Packaging box dimensions (L / W / H)	1675mm / 1060mm / 1005 mm
Box weight	500

GENERAL CHARACTERISTICS

Dimensions (L / W / H)	1662mm / 992mm / 35mm
Weight	19kg

Certicates & Approvals R-71013536

DHOOP PP72 35mm SERIES POLY

KEY FEATURES:

- BIS and IEC Certified modules.
- High conversion efficiency.
- 1500 V module
- +5 W positive tolerance
- Excellent performance in low light and low irradiance.
- ARC coated high Transmission glasses
- 100% EL inspected to ensure micro cracks free modules
- Resistance to PID, LID and Salt mist.
- Hotspot and defect free modules
- Certified to withstand harsh environmental conditions.
- 25 Years of output power warranty.

DHOOP PP72 Cell 35mm SERIES POLY

Electrical parameters at Standard Test Conditions (STC)

DHOOP PP 72 Series

Power output	Pmax	W	300	305	310	315	325	275
Power output tolerances	ΔPmax		Positive Tolerance Only					
Module efficiency	nm	%	15.46	15.71	15.97	16.23	16.49	16.74
Voltage at P_{max}	Vmpp	V	36.8	37.22	37.72	37.9	38.3	38.59
Current at P_{max}	Impp	A	8.16	8.21	8.24	8.32	8.37	8.44
Open-circuit voltage	Voc	V	43.99	44.72	44.9	45.00	45.28	45.43
Short-circuit current	Isc	A	8.69	8.78	8.81	8.85	8.9	9.00

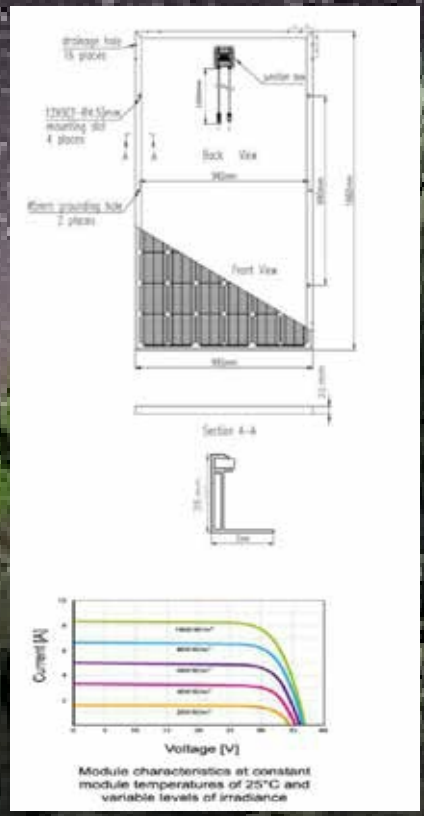
THERMAL CHARACTERISTICS

Nominal operating cell temperature	NOCT	°C	46 +/- 2
Temperature coefficient of P_{max}	Y	%/°C	-0.38
Temperature coefficient of v_{oc}	B_{Voc}	%/°C	-0.27
Temperature coefficient of I_{sc}	A_{Isc}	%/°C	0.0051
Temperature coefficient of V_{mp}	B_{Vmpp}	%/°C	-0.45

STC: 1000W/m2 Irradiance, 25° C Cell temperature, AM1.5 g spectrum according to EN 60904-3. Average realtive eciency reduction of 5% at 200W/m2 according to EN60904-1

OPERATING CONDITIONS

Max. system voltage	$1000V_{DC}$
Max. series fuse rating	20A
Limiting reverse current	20A
Operating temperature range	-40°C to 85°C
Max. static load, front(e.g., snow and wind)	5400Pa
Max. static load, back (e.g., wind)	2400Pa
Max. hailstone impact (diameter / velocity)	25mm / 23m/s



Module characteristics at constant module temperatures of 25°C and variable levels of irradiance

CONSTRUCTION MATERIALS

Front cover (material / thickness)	low-iron tempered glass / 3.2mm
Cell (quantity / material / dimensions / number of busbars)	72 /multi-crystalline silicon / x 157 mm x 157mm / 5
Encapsulate (material)	PID free ethylene vinyl acetate (EVA)
Frame (material / color / anodization color / edge sealing)	anodized aluminum alloy / silver / clear / silicone or tape
Junction box (protection degree)	TUV certified IP67 rated / Weatherproof PPO enclosure with 3 bypass diodes
Cable (length / cross-sectional area)	TUV certified cable with length 1.25m / 4mm2
Plug connector (type / protection degree)	MC4 or compatible

PACKAGING SPECIFICATIONS

Number of modules per pallet	30
Number of pallets per 20' Vehicle	10
Packaging box dimensions (L / W / H)	1975mm / 1060mm / 1005 mm
Box weight	720

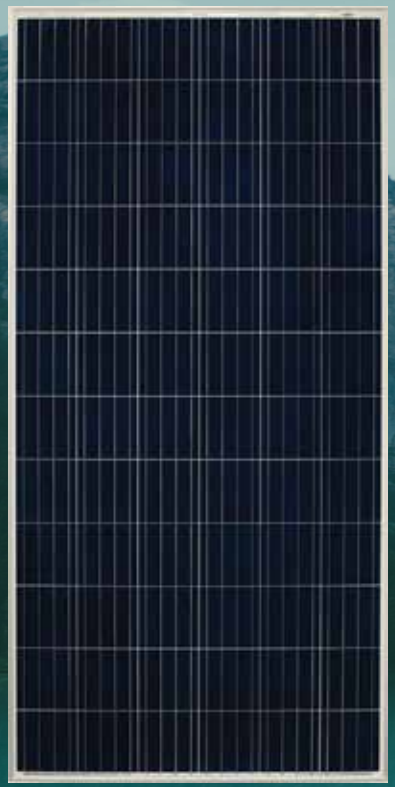
GENERAL CHARACTERISTICS

Dimensions (L / W / H)	1960mm / 990mm / 35mm
Weight	21kg

Certicates & Approvals

R-71013536

35mm SERIES
DHOOP PP72
POLY PERC



KEY FEATURES:

- BIS and IEC Certified modules.
- High conversion efficiency.
- 1500 V module
- +5 W positive tolerance
- Excellent performance in low light and low irradiance.
- ARC coated high Transmission glasses
- 100% EL inspected to ensure micro cracks free modules
- Resistance to PID, LID and Salt mist.
- Hotspot and defect free modules
- Certified to withstand harsh environmental conditions.
- 25 Years of output power warranty.

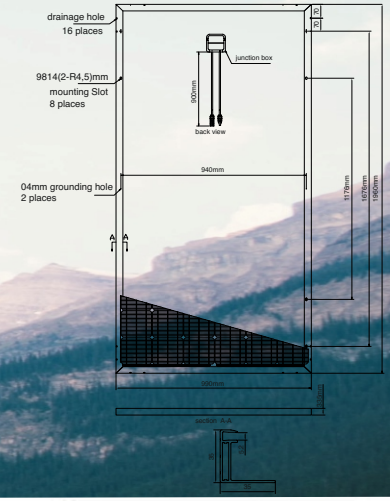
DHOOP PP72 35mm SERIES POLY PERC

Electrical parameters at Standard Test Conditions (STC)								
DHOO PPP72 PERC Series								
Power output	**Pmax**	**W**	**330**	**335**	**340**	**345**	**350**	**355**
Power output tolerances	**ΔPmax**			**Positive Tolerance Only**				
Module efficiency	**nm**	**%**	**17.00**	**17.26**	**17.52**	**17.78**	**18.04**	**18.29**
Voltage at P_{max}	**Vmpp**	**V**	**38.84**	**38.98**	**39.01**	**39.06**	**39.10**	**39.21**
Current at P_{max}	**Impp**	**A**	**8.50**	**8.60**	**8.72**	**8.84**	**8.97**	**9.06**
Open-circuit voltage	**Voc**	**V**	**45.51**	**45.87**	**46.08**	**46.21**	**46.66**	**47.80**
Short-circuit current	**Isc**	**A**	**8.99**	**9.02**	**9.39**	**9.42**	**9.46**	**9.51**

THERMAL CHARACTERISTICS

Nominal operating cell temperature	**NOCT**	**°C**	**46 +/-2**
Temperature coefficient of P_{max}	**Y**	**%/°C**	**-0.38**
Temperature coefficient of V_{oc}	**B_{Voc}**	**%/°C**	**-0.28**
Temperature coefficient of I_{sc}	**A_{Isc}**	**%/°C**	**0.0051**
Temperature coefficient of V_{mp}	**B_{Vmpp}**	**%/°C**	**-0.45**

STC: 1000W/m2 Irradiance, 25° C Cell temperature, AM1.5 g spectrum according to EN 60904-3. Average realtive eciency reduction

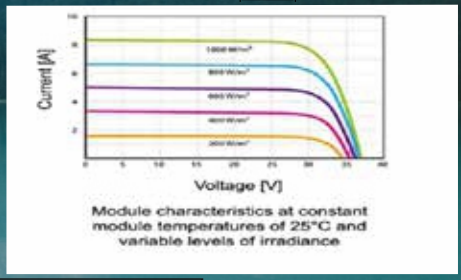


OPERATING CONDITIONS

Max. system voltage	**1500V_{DC}**
Max. series fuse rating	**20A**
Limiting reverse current	**20A**
Operating temperature range	**40°C to 85°C**
Max. static load, front (e.g., snow and wind)	**5400Pa**
Max. static load, back (e.g., wind)	**2400Pa**
Max. hailstone impact (diameter / velocity)	**25mm / 23m/s**

CONSTRUCTION MATERIALS

Front cover (material / thickness)	low-iron tempered glass / 3.2mm
Cell (quantity / material / dimensions / number of busbars)	72 / PERCmulti-crystalline silicon / 157 mm X 157 mm / 5
Encapsulate (material)	PID free ethylene vinyl acetate (EVA)
Frame (material / color / anodization color / edge sealing)	anodized aluminum alloy / silver / clear / silicone or tape
Junction box (protection degree)	TUV certified IP67 rated / Weatherproof PPO enclosure with 3 bypass diodes
Cable (length / cross-sectional area)	TUV certified cable with length 1.25 m / 4mm2
Plug connector (type / protection degree)	MC4 or compatible



Module characteristics at constant module temperatures of 25°C and variable levels of irradiance

PACKAGING SPECIFICATIONS

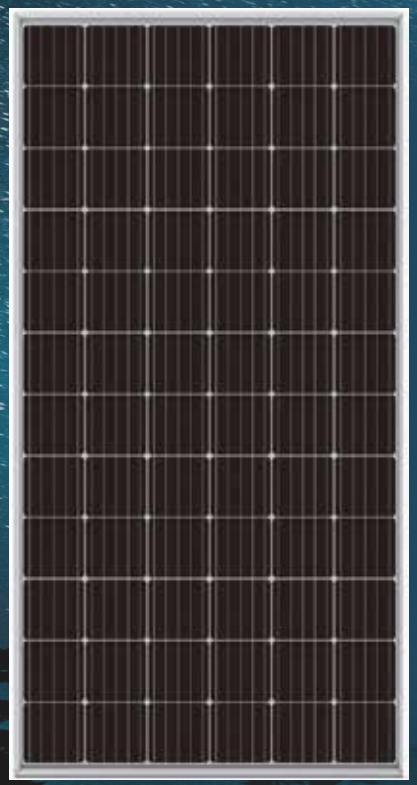
Number of modules per pallet	30
Number of pallets per 20' Vehicle	10
Packaging box dimensions (L / W / H)	1975mm / 1060mm / 1005mm
Box weight	720

GENERAL CHARACTERISTICS

Dimensions (L / W / H)	1960mm / 990mm / 35mm
Weight	21kg

R-71013536 IEC MNRE ISO

DHOOP PM72 35mm SERIES MONO PERC



KEY FEATURES:

- BIS and IEC Certified modules.
- High conversion efficiency.
- Designed with new generation PERC technology
- 1500 v module
- Positive Tolerance Always
- Lower temprature co-efficient
- 100% EL tested module to ensure micro crack
- Lower temperature co-efficient
- 100% EL tested module to ensure micro crack free modules
- 25 years output Power warranty

DHOOP PM72 Cell 35mm SERIES MONO PERC

Electrical parameters at Standard Test Conditions (STC)

DHOOP PM72 Series								
Power output	Pmax	W	330	340	350	360	370	380
Power output tolerances	ΔPmax			Positive Tolerance Only				
Module efficiency	nm	%	17.00	17.52	18.03	18.55	19.06	19.58
Voltage at P_{max}	Vmpp	V	37.70	38.10	38.50	38.90	39.30	39.70
Current at P_{max}	Impp	A	8.76	8.93	9.10	9.26	9.42	9.58
Open-circuit voltage	Voc	V	46.90	47.15	47.35	47.65	48.05	48.45
Short-circuit current	Isc	A	9.35	9.50	9.60	9.70	9.80	9.90

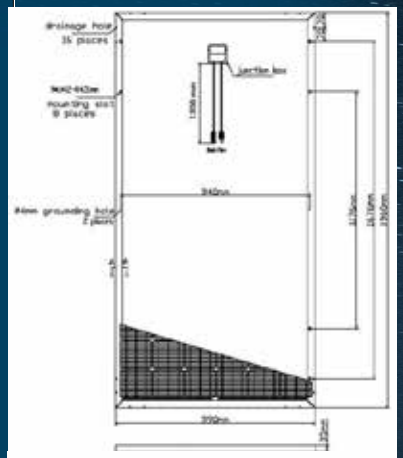
THERMAL CHARACTERISTICS

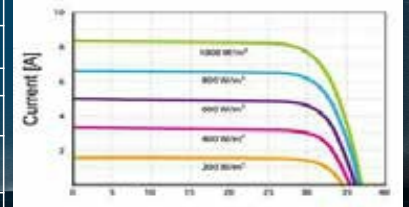
Nominal operating cell temperature	NOCT	°C	46 +/-2
Temperature coefficient of P_{max}	Y	%/°C	-0.38
Temperature coefficient of V_{oc}	B_{Voc}	%/°C	-0.27
Temperature coefficient of I_{sc}	A_{Isc}	%/°C	0.0037
Temperature coefficient of V_{mp}	B_{Vmpp}	%/°C	-0.45

STC: 1000W/m2 Irradiance, 25° C Cell temperature, AM1.5 g spectrum according to EN 60904-3.
Average realtive eciency reduction

OPERATING CONDITIONS

Max. system voltage	1000V_{DC}
Max. series fuse rating	20A
Limiting reverse current	20A
Operating temperature range	-40°C to 85°C
Max. static load, front (e.g., snow and wind)	5400Pa
Max. static load, back (e.g., wind)	2400Pa
Max. hailstone impact (diameter / velocity)	25mm / 23m/s





Module characteristics at constant module temperatures of 25°C and variable levels of irradiance

CONSTRUCTION MATERIALS

Front cover (material / thickness)	low-iron tempered glass / 3.2mm
Cell (quantity / material / dimensions / number of busbars)	72 / PERCmulti-crystalline silicon / 157 mm X 157 mm / 5
Encapsulate (material)	PID free ethylene vinyl acetate (EVA)
Frame (material / color / anodization color / edge sealing)	anodized aluminum alloy / silver / clear / silicone or tape
Junction box (protection degree)	TUV certified IP67 rated / Weatherproof PPO enclosure with 3 bypass diodes
Cable (length / cross-sectional area)	TUV certified cable with length 1.25 m / 4mm2
Plug connector (type / protection degree)	MC4 or compatible

PACKAGING SPECIFICATIONS

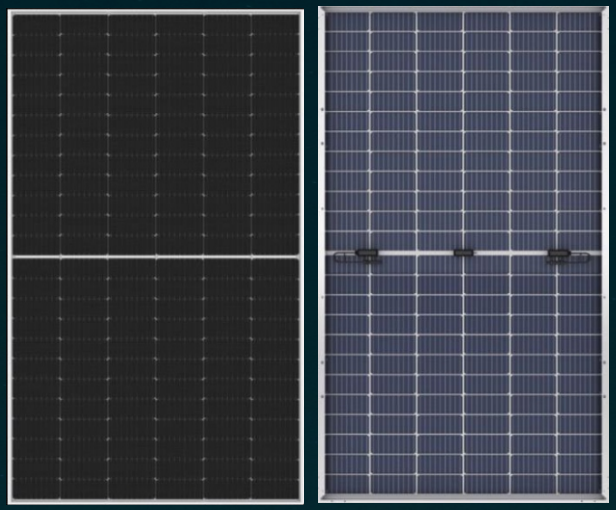
Number of modules per pallet	30
Number of pallets per 20' Vehicle	10
Packaging box dimensions (L / W / H)	1975mm / 1060mm / 1005mm
Box weight	720

GENERAL CHARACTERISTICS

Dimensions (L / W / H)	1960mm / 990mm / 35mm
Weight	21kg

R-71013536

BLUE SAPPHIRE SERIES
DHOOP 540 I 545 I 550 I 555Watt
BIFACIAL MODULE WITH DUAL GLASS



KEY FEATURES:

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- Minimizes micro crack impacts
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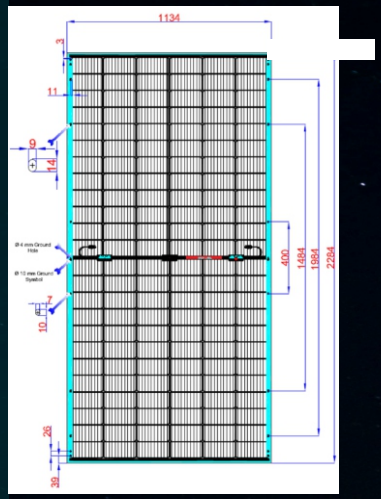
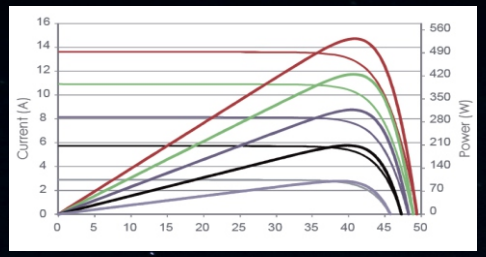
- 27 Years Power Warranty

TECHNICAL DRAWING



ELECTRICAL PERFORMANCE



PACKAGING CONFIGURATION		
Container	22Feet	40 Feet
Pieces/Pallet	30	30
Pallets/Container	10	20
Pieces/Container	300	600

MECHANICAL CHARACTERISTICS	
Cell Type	Mono - crystalline Bifacial
No. of cells	144 [2 x (12 x 6)]
Dimensions	2284×1134×35mm
Weight	33kg
Front Glass	2.0mm, Ant Reflection Coating
Back Glass	2.0mm, Heat Strengthened Glass
Frame	Anodized Aluminium Alloy
EVA	Transparent EVA
Junction Box	Ip68, 3 diodes 25amp,
Output Cables	4 mm2 (IEC), 12 AWG (UL)
Connectors	MC4 compatible Connectors
Cable Length	400 mm (Customize length available)

ELECTRICAL CHARACTERISTIC								
Module Type	540w		545w		550w		555w	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	540	403.3	545	407	550	410.7	555	415.7
Maximum Power Voltage (Vmp)	41.65	38.78V	41.80	38.92V	41.95	39.061V	42.17	39.281
Maximum Power Current (Imp)	12.97	10.40A	13.04	10.46A	13.12	10.52A	13.17	10.57
Open-circuit Voltage (Voc)	49.50	46.41V	49.65	46.55V	49.80	46.69V	49.95	46.84
Short-circuit Current (Isc)	13.85	11.20A	13.92	11.25A	13.98	11.31A	14.05	11.38
Module Efficiency STC (%)	20.84		21.03		21.23		21.42	
Operating Temperature( )	- 40°C~+85°C							
Maximum system voltage	1500VDC							
Maximum series fuse rating	25A							
Power tolerance	0~+3%							
Protection Class	Class II							

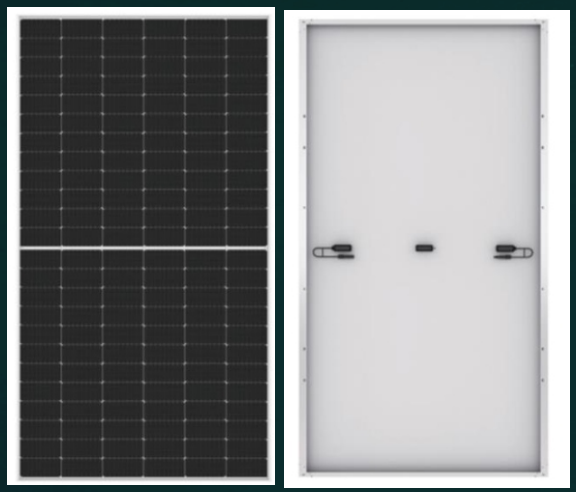
TEMPERATURE CHARACTERISTIC	
Temperature coefficients of Pmax	0.35%/°C
Temperature coefficients of Voc	0.28%/
Temperature coefficients of Isc	0.048%/°C

BIFACIAL OUTPUT- REARSIDE POWER GAIN				
5%	Maximum Power (Pmax) 567Wp	572.25Wp	577.5Wp	582.75Wp
	Module Efficiency STC (%) 21.89%	22.09%	22.29%	22.5%
15%	Maximum Power (Pmax) 621Wp	626.75Wp	632.5Wp	638.25Wp
	Module Efficiency STC (%) 23.98%	24.19%	24.42%	24.64%
25%	Maximum Power (Pmax) 675Wp	681.25Wp	687.5Wp	693.75Wp
	Module Efficiency STC (%) 26.06%	26.3%	26.54%	26.78%

BLUE OPAL SERIES

DHOOP 540 I 545 I 550 I 555 Watt

MONO PERC



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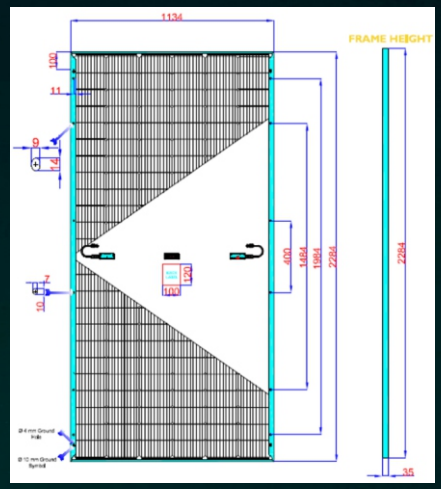
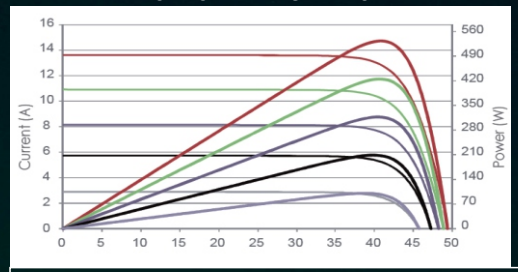
TECHNICAL DRAWING



ELECTRICAL PERFORMANCE



PACKAGING CONFIGURATION		
Container	22Feet	40 Feet
Pieces/Pallet	30	30
Pallets/Container	10	20
Pieces/Container	300	600

MECHANICAL CHARACTERISTICS	
Cell Type	Mono - PERC Cell
No. of cells	144 [2 x (12 x 6)]
Dimensions	2284×1134×35mm
Weight	29kg
Front Glass	3.2 mm tempered glass
Back Glass	2.0mm, Heat Strengthened Glass
Frame	Anodized Aluminium Alloy
EVA	Transparent EVA
Back-Sheet	White PVDF Back Sheet (Black available optional)
Junction Box	Ip68, 3 diodes 25amp,
Output Cables	4 mm2 (IEC), 12 AWG (UL)
Connectors	MC4 compatible Connectors
Cable Length	400 mm (Customize length available)

ELECTRICAL CHARACTERISTIC								
Module Type	540w		545w		550w		555w	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	540	403.3	545	407	550	410.7	555	415.7
Maximum Power Voltage (Vmp)	41.65	38.78V	41.80	38.92V	41.95	39.061V	42.17	39.281
Maximum Power Current (Imp)	12.97	10.40A	13.04	10.46A	13.12	10.52A	13.17	10.57
Open-circuit Voltage (Voc)	49.50	46.41V	49.65	46.55V	49.80	46.69V	49.95	46.84
Short-circuit Current (Isc)	13.85	11.20A	13.92	11.25A	13.98	11.31A	14.05	11.38
Module Efficiency STC (%)	20.84		21.03		21.23		21.42	
Operating Temperature( )	- 40°C~+85°C							
Maximum system voltage	1500VDC							
Maximum series fuse rating	25A							
Power tolerance	0~+3%							
Protection Class	Class II							

TEMPERATURE CHARACTERISTIC	
Temperature coefficients of Pmax	0.35%/°C
Temperature coefficients of Voc	0.28%/
Temperature coefficients of Isc	0.048%/°C

BIFACIAL OUTPUT- REARSIDE POWER GAIN				
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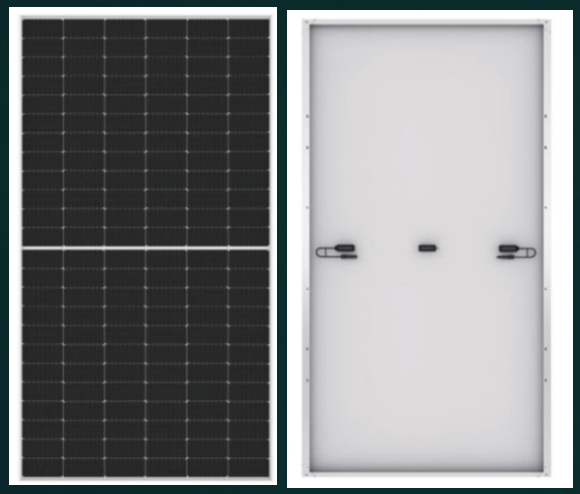
	Module Efficiency STC (%) 26.06%	26.3%	26.54%	26.78%

BLUE OPAL SERIES

DHOOP 595 I 600 I 605 I 610 Watt

MONO PERC



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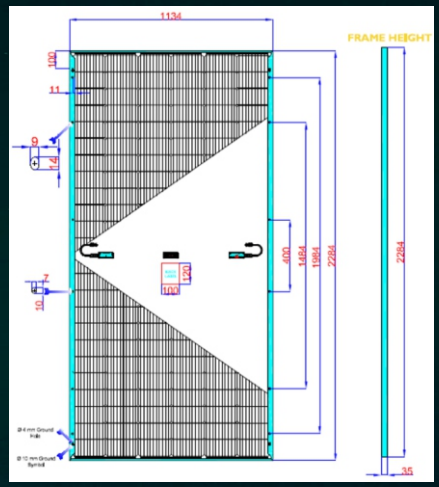
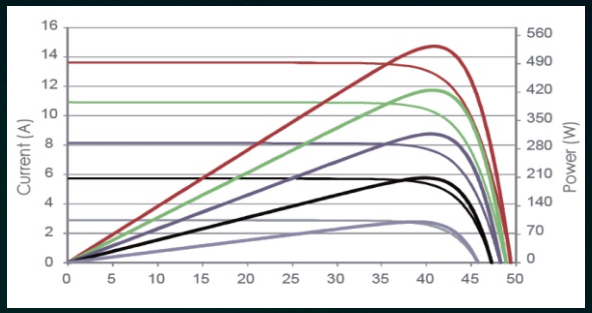
TECHNICAL DRAWING



ELECTRICAL PERFORMANCE



PACKAGING CONFIGURATION	
Container	40 Feet
Pieces/Pallet	30
Pallets/Container	10
Pieces/Container	480

MECHANICAL CHARACTERISTICS	
Cell Type	Mono - PERC Cell
No. of cells	120 [2 x (10 x 6)]
Dimensions	2194×1138×35mm
Weight	32kg
Front Glass	3.2 mm tempered glass
Frame	Anodized Aluminium Alloy
EVA	Transparent EVA
Back-Sheet	PVDF Back Sheet (Black available (optional)
Junction Box	Ip68, 3 diodes 25amp,
Output Cables	4 mm2 (IEC), 12 AWG (UL)
Connectors	MC4 compatible Connectors
Cable Length	400 mm (Customize length available)

ELECTRICAL CHARACTERISTIC								
Module Type	540w		545w		550w		555w	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	595	446	600	450	605	454	610	458
Maximum Power Voltage (Vmp)	34.7	32.5	34.9	32.7	35.1	32.9	35.3	33.1
Maximum Power Current (Imp)	17.15	13.73	17.20	13.77	17.25	13.81	17.3	13.84
Open-circuit Voltage (Voc)	41.1	38.8	41.3	39.0	41.5	39.2	41.7	39.3
Short-circuit Current (Isc)	18.42	14.85	18.47	14.89	18.52	14.93	18.57	14.98
Module Efficiency STC (%)	20.58		20.75		20.92		21.09	
Operating Temperature( )	- 40°C~+85°C							
Maximum system voltage	1500VDC							
Maximum series fuse rating	25A							
Power tolerance	0~+3%							
Protection Class	Class II							

TEMPERATURE CHARACTERISTIC	
Temperature coefficients of Pmax	0.35%/°C
Temperature coefficients of Voc	0.28%/
Temperature coefficients of Isc	0.048%/°C

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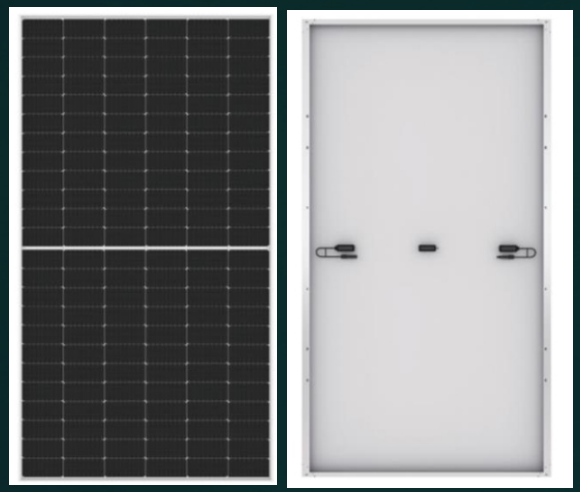

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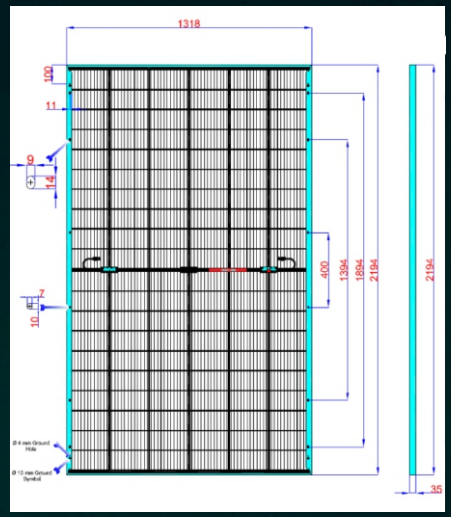

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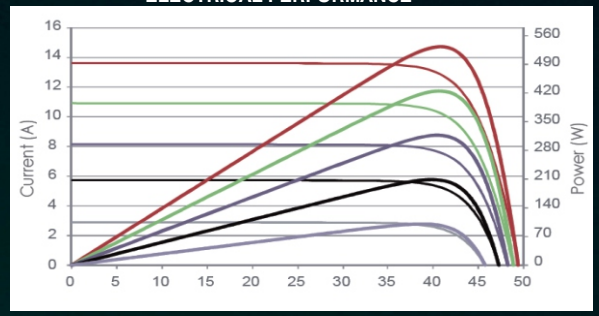

MECHANICAL CHARACTERISTICS	
Cell Type	Mono - Crystalline Bifacial
No. of cells	120 [2 x (10 x 6)]
Dimensions	2194×1138×35mm
Weight	35kg
Front Glass	2.0mm, Anti - Reflection Coating
Back Glass	2.0mm, Heat Strengthened Glass
Frame	Anodized Aluminium Alloy
EVA	Transparent EVA
Back-Sheet	PVDF Back Sheet (Black available (optional)
Junction Box	Ip68, 3 diodes 25amp,
Output Cables	4 mm2 (IEC), 12 AWG (UL)
Connectors	MC4 compatible Connectors
Cable Length	400 mm (Customize length available)

PACKAGING CONFIGURATION	
Container	40 Feet
Pieces/Pallet	30
Pallets/Container	16
Pieces/Container	480

ELECTRICAL CHARACTERISTIC								
Module Type	540w		545w		550w		555w	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
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BIFACIAL OUTPUT- REARSIDE POWER GAIN					
5%	Maximum Power (Pmax)	625	630	635	640
	Module Efficiency STC (%)	21.61	21.79	21.96	22.13
15%	Maximum Power (Pmax)	685	690	695	700
	Module Efficiency STC (%)	23.69	23.86	24.03	24.21
25%	Maximum Power (Pmax)	745	750	756	762
	Module Efficiency STC (%)	25.76	25.94	26.14	26.35

MILESTONES ACHIEVED

1965
- Matches Goa Private Limited
- Tyresoles Goa Private Limited

1966
- Agrawal Minerals (Goa) Private Limited

1974
- Ferromar Shipping Private Limited

1975
- DCI Pharmaceuticals Private Limited

1976
- Kayji Real Estate Private Limited

1984
- Medizest Pharmaceuticals Private Limited

2004
- Aryavaan Pharmaceuticals Private Limited

2011
- Agrawal Renewable Energy Pvt Ltd
- Damodar Hospitality Pvt Ltd
- Damodar Land Holdings Pvt Ltd
- Damodar Realty Holdings Pvt Ltd
- GNAgrawal Land Holdings Pvt Ltd
- Pramatha Buildcon Pvt Ltd
- Pramatha Land Holdings Pvt Ltd
- Pramatha Power Pvt Ltd

2012
- Agrawal Investment & Capital Services Pvt Ltd
- Agrawal Medicaments Pvt Ltd

2015
- Agrawal Solar Power (UP) Private Limited

AWARDS

- BEST Renewable Energy Projects 2018 (Solar Plus Expo & World Conference)
- Goa State Solar Energy Leadership Award 2018 (Social and Corporate Governance)
- Solar Module Company of the year 2017 (India Rooftop Solar Congress 2017)
- Rooftop Project Developer of the year 2017 (India Rooftop Solar Congress 2017)
- Best Emerging Brand in Solar Power 2015 (UBM in REI 2015)

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THANK YOU