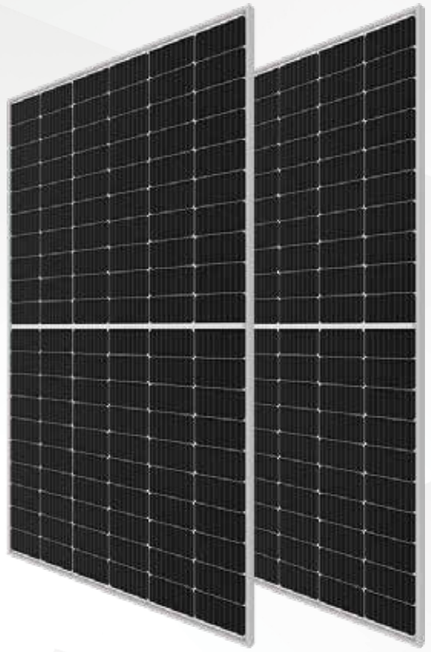
APEX SOLAR

120cells Monocrystalline Module



HRAP-120H 435-455M10

21.02%
Maximum Module Efficiency

455W
Maximum Power Output

1909×1134×30mm
Module Dimensions

0-±3%
Guaranteed 0-±3% positive tolerance ensures the power output reliability

High customer value
Lower cost per kilowatt hour.High quality silicon wafer guarantee, high power module output, excellent cost performance advantage, is an ideal choice for solar power stations

Highly reliable due to stringent quality control
Three times strict EL testing beyond certification requirements

Fusion of MBB and half-cut cells technology
The new circuit design, minimizes the impact of shadow on the power generation of solar module.Excellent light utilization and current collection capacity, effectively improve product power output and reliability

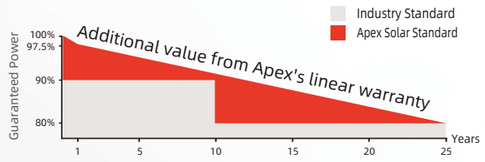
Excellent Anti-PID performance
Ensure that the scale production passes the PID test, and greatly reduce the attenuation caused by PID by optimizing the wafer process

Outstanding low light performance
The coated glass with high transmittance and the surface technology of the wafer are used to achieve excellent performance in low light environment

IEC 61215 / IEC 61730
ISO 9001 :Quality Management System
ISO 14001 :Environment Management

Industry Leading Linear Power Warranty

12-year Warranty for Materials and Processing . 25-year Warranty for Extra Linear Power Output



High Efficiency Half-cells Solar Panel HRAP-120H 435-455M10

ELECTRICAL PARAMETERS AT STC

Rated Maximum Power(Pmax) [W]	435	440	445	450	455
Maximum Power Voltage(Vmp) [V]	33.76	33.91	34.06	34.21	34.36
Maximum Power Current(Imp) [A]	12.89	12.98	13.07	13.16	13.25
Open Circuit Voltage(Voc) [V]	40.8	40.95	41.1	41.25	41.4
Short Circuit Current(lsc) [A]	13.34	13.41	13.52	13.62	13.72
Module Efficiency [%]	20.09	20.33	20.56	20.79	21.02

STC: lrradiance 1000 W/m2 module temperature 25℃ AM=1.5

ELECTRICAL PARAMETERS AT NOCT

Rated Maximum Power(Pmax)[W]	326	330	334	338	342
Maximum Power Voltage(Vmp) [V]	31.19	31.34	31.49	31.64	31.79
Maximum Power Current(Imp) [A]	10.46	10.54	10.62	10.69	10.77
Open Circuit Voltage(Voc) [V]	37.61	37.76	37.91	38.06	38.21
Short Circuit Current(lsc) [A]	11.11	11.19	11.28	11.36	11.45

NOCT: lrradiance 800 W/m2 ambient temperature 20℃ wind speed: 1m/s

MECHANICAL SPECIFICATION

Cell Type	Monocrystalline
Cell Dimensions	182×182mm
Cell Arrangement	120(6×20)
Weight	23.5kg
Module Dimensions	1909×1134×30mm
Cable	4.0 mm²positive/negative:300mm(11.8inches),length Can be customized
Front Glass	3.2 mm high transmittance,AR coating tempered glass
Frame	Anodized aluminium alloy
junction Box	Protection class lp68
Connector	Mc4 Compatible
Mechanical Load	Front side 5400Pa/Rear side 2400Pa

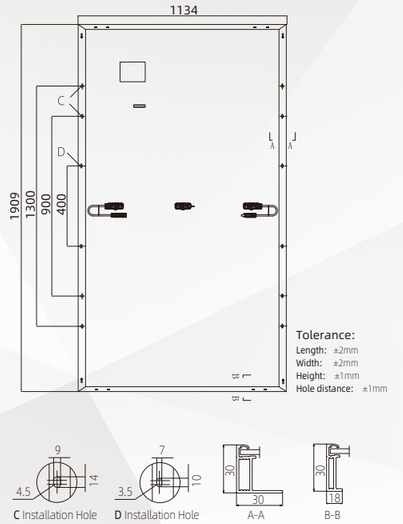
OPERATING CONDITIONS

Maximum System Voltage (V)	1000VDC/1500VDC
Pmax Temperature Coefficient	-0.34%/℃
Voc Temperature Coefficient	-0.28%/℃
ISC Temperature Coefficient	+0.05 %/℃
Nominal Operating Cell Temperature	45±2℃
Operating Temperature	- 40℃-+85℃
Maximum Series Fuse	20A

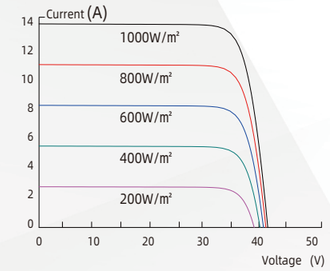
PACKING CONFIGURATION

Quantity/Pallet	36pcs/pallet
Quantity/Container	864pcs/40HQ

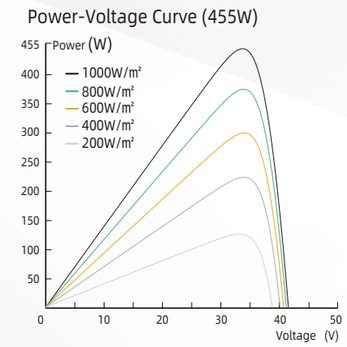
Module Dimension(mm)



Current-Voltage Curve (455W)



Power-Voltage Curve (455W)



APEX SOLAR
GLOBAL OPERATION CENTER : ROOM 2701, BLOCK A, SPAR INTERNATIONAL CENTER, XISHAN DISTRICT, WUXI CITY
PRODUCTION BASES: APEX SOLAR ENERGY,NO. 1 XINJING ROAD, TIANSHAN INDUSTRIAL CONCENTRATION ZONE， SONGQIAO TOWN, GAOYOU CITY
WEBSITE: WWW.APEX-SOLARENERGY.COM

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