

445~465 Watt

HORAY

TIER1
BloombergNEF

HM **210R-96** TC 1.6 *Lite* N-type Mono-facial Modules



6.9kg/m², 40% lighter than conventional glass module.



Ideal for rooftops with limited load capacity



SMBB Half-Cell Technology

More uniform current collection capability, reducing the current heat loss of the internal cells.



Higher Output Power

The output power of 96 half-cells monocrystalline modules is up to 465W.



Mechanical Load Enhanced

Heavy snow load up to 3600 Pa, wind load up to 2400 Pa.



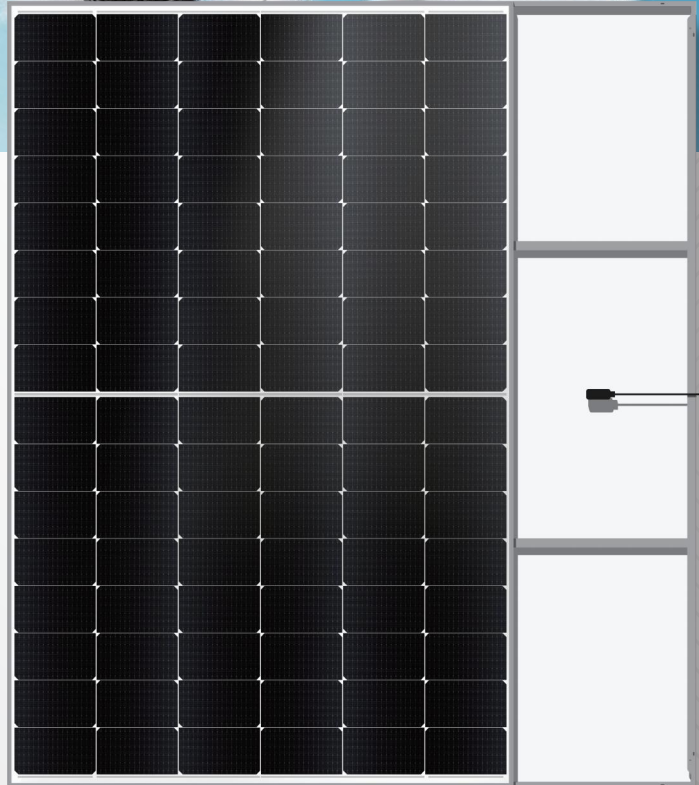
Better Weather Adaptability

Excellent low light performance, lower temperature coefficients and power loss under high temperature.



Lower Power Attenuation

Anti PID and negligible LID/LeTID attenuation, which can reduce power loss.



IEC61215:2021

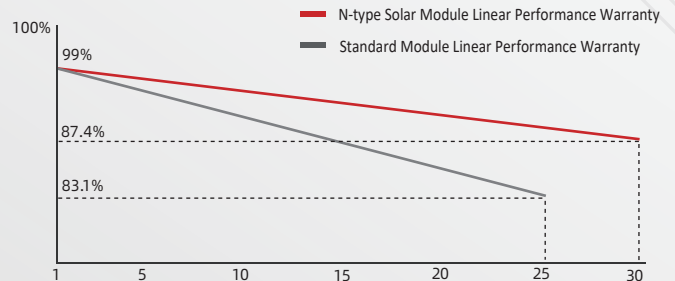
IEC61730:2023

ISO9001:2015 Quality Management System

ISO14001:2015 Environmental Management System

ISO45001:2018 Occupational Health and Safety Management System

CE: Europe Standard



12-year product warranty



25-year linear power output warranty

HEADQUARTER: HORAY SOLAR CO., LTD.

GLOBAL MARKETING AND SERVICE: HORAY SOLAR GMBH

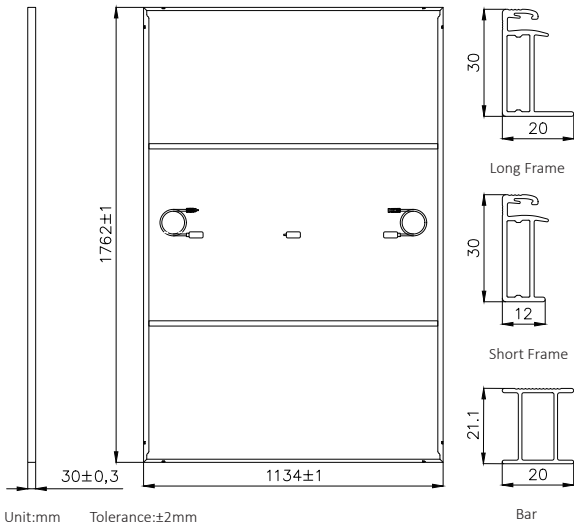
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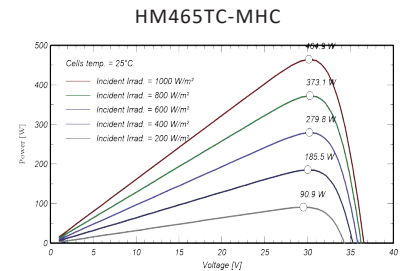
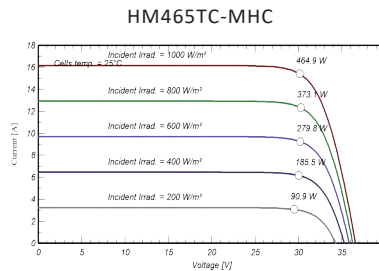
MECHANICAL DIAGRAMS



MECHANICAL PARAMETERS

Weight	13.8kg
Dimension	1762×1134×30mm
Cell Orientation	96 (6×16)
Junction Box	IP68, three diodes
Output Cable	4mm ² , ±300mm (length can be customized)
Connector	MC4 compatible
Glass	1.6mm high transmittance tempered glass
Frame	Anodized aluminum alloy frame
Packaging	36pcs per pallet/936pcs per 40'HC

MECHANICAL PARAMETERS



ELECTRICAL CHARACTERISTICS AT STC

Module Type	HM445TC-MHC	HM450TC-MHC	HM455TC-MHC	HM460TC-MHC	HM465TC-MHC
Testing Condition	STC	STC	STC	STC	STC
Maximum Power(Pmax/W)	445	450	455	460	465
Open Circuit Voltage(Voc/V)	35.87	36.04	36.21	36.39	36.56
Short Circuit Current(Isc/A)	15.77	15.87	15.97	16.07	16.16
Maximum Power Voltage(Vmp/V)	29.81	29.95	30.10	30.24	30.38
Maximum Power Current(Imp/A)	14.93	15.02	15.12	15.21	15.30
Module Efficiency(%)	22.3	22.5	22.8	23.0	23.3

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

ELECTRICAL CHARACTERISTICS AT NMOT

Module Type	HM445TC-MHC	HM450TC-MHC	HM455TC-MHC	HM460TC-MHC	HM465TC-MHC
Testing Condition	NMOT	NMOT	NMOT	NMOT	NMOT
Maximum Power(Pmax/W)	347	351	355	359	363
Open Circuit Voltage(Voc/V)	35.62	35.79	35.96	36.13	36.30
Short Circuit Current(Isc/A)	12.30	12.38	12.45	12.53	12.61
Maximum Power Voltage(Vmp/V)	30.14	30.28	30.43	30.57	30.72
Maximum Power Current(Imp/A)	11.52	11.59	11.66	11.74	11.81

* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m², spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/23.3

OPERATING PARAMETERS

Operational Temperature	-40°C~+85°C
Power Output Tolerance	0~5%
Maximum System Voltage	1500V
Maximum Series Fuse Rating	30A
Nominal Operating Cell Temperature	45±2°C
Protection Class	Class II
Fire Rating	IEC Class C

*The actual test value may be slightly deviated from the technical parameters due to the difference in test methods.

MECHANICAL LOADING

Front Side Maximum Static Loading	3600Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

TEMPERATURE RATINGS (STC)

Temperature Coefficient of Isc	+0.048%/°C
Temperature Coefficient of Voc	-0.26%/°C
Temperature Coefficient of Pmax	-0.35%/°C

