



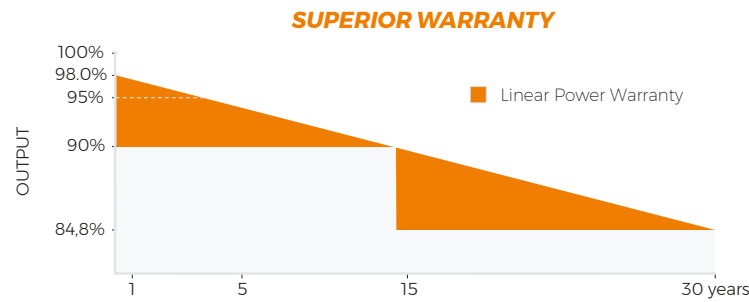
Helius
energy

HELIUS INVICTUS

HMB144M6

450W - 465W

30-year linear power output warranty



INMETRO, IEC 61215, IEC 61730, IEC TS 62804, IEC 61701
ISO 9001:2008 - ISO 14001:2004 - OSHAS 18001:2007

PREMIUM MONOCRYSTALLINE CELLS
MBB HALF CELL TECHNOLOGY



SUPERIOR QUALITY

With MBB technology and half cell design, Helius Energy panels reduce cover of cell by busbars and improve current collection ability on cloudy days.



HIGH EFFICIENCY AND POWER DENSITY

High conversion efficiency and up to 465 W on 2.19m² (21.30%). More gain power per square meter.



PERFORMANCE WARRANTY

With up to 30 years of solar generation, Helius Energy warranty can guarantee the longevity of your project.



LIGHT AND RELIABLE

Much lighter modules with thicker frames to ensure module resilience. Modules could be applied under ammonia, salt mist, high temperature, high humidity condition.



FIRE-PROOF PERFORMANCE

Modules are approved and tested under IEC 61730 and Class C Fire Test.

WWW.HE-SOLAR.COM



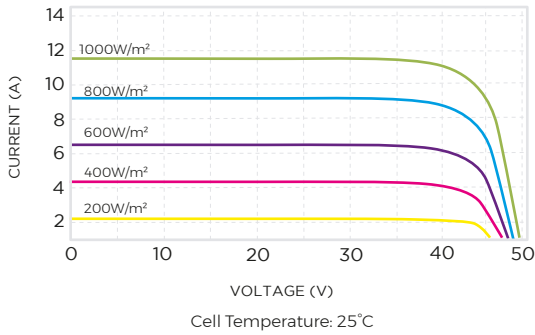
Helius energy

MECHANICAL CHARACTERISTICS

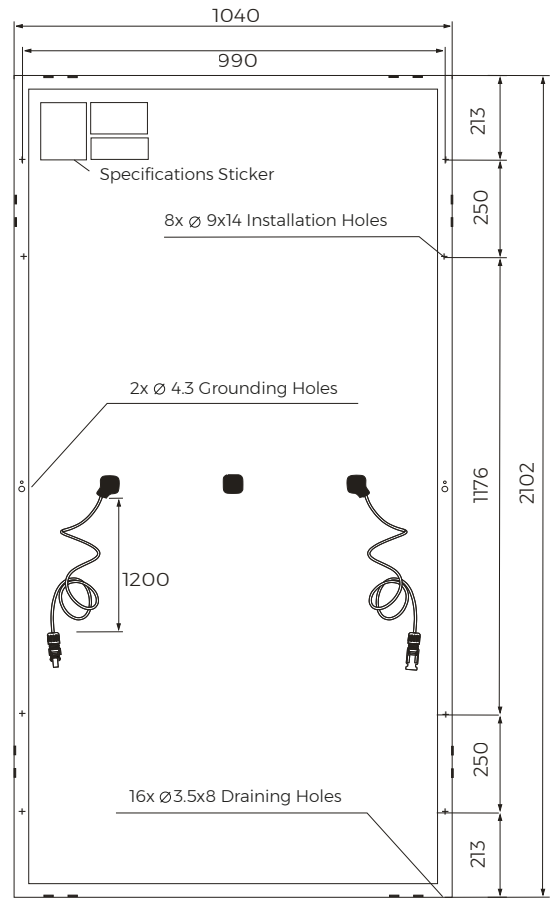
Dimensions	2102 x 1040 x 35mm
Solar Cells	144 Monocrystalline Cells
Weight	29 kg
Frame	Anodized Aluminium Alloy
Frontal Glass	2mm High Transmission, Low Iron Tempered
Back Sheet	2mm Tempered Glass
J-Box	IP68 / 3 bypass diodes
Cables	4mm / length 1200mm

TEMPERATURE CHARACTERISTICS

Temperature Coefficient I _{sc}	0.04% / °C
Temperature Coefficient V _{oc}	-0.26% / °C
Temperature Coefficient P _{max}	-0.36% / °C
Nominal Module Operating Temperature NMOT	45°C
Operational Temperature	-40°C a +85°C



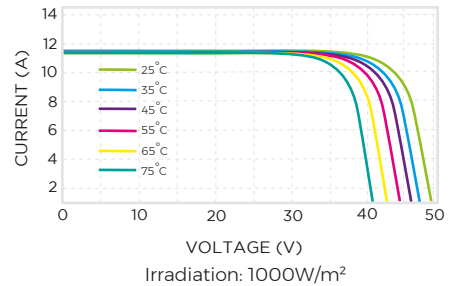
TECHNICAL DIMENSIONS (MM)



ELECTRICAL CHARACTERISTICS

HMB144M6	450HL	455HL	460HL	465HL
Maximum Power P _{Max} (W)	450	455	460	465
Maximum Power Voltage V _{mp} (V)	41.88	41.97	42.08	42.35
Maximum Power Current I _{mp} (A)	10.74	10.84	10.93	10.98
Open Circuit Voltage V _{oc} (V)	49.87	49.98	50.05	50.10
Short Circuit Current I _{sc} (A)	11.21	11.32	11.45	11.56
Module Efficiency	20.50%	20.80%	21.10%	21.30%
Maximum System Voltage	1500VCC			

Test Conditions: 1000W/m², 25°C, AM =1.5



ELECTRICAL CHARACTERISTICS WITH REAR POWER GAIN (465W)

P _{max} Gain (%)	10%	20%	30%
Maximum Power P _{Max} (W)	511.5	558	604.5
Maximum Power Voltage V _{mp} (V)	42.35	42.35	42.35
Maximum Power Current I _{mp} (A)	12.08	13.18	14.27

PACKAGING CONFIGURATION

Modules per Container 40HQ	682 pcs
Pallets per Container 40HQ	22
Modules per Pallet	31
Pallet Dimensions	2140 x 1170 x 1195mm
Gross Weight per Pallet (kg)	750

Helius Energy reserves the right to change data and specifications without notices. All rights are reserved to Helius Energy. For more informations, contact a technical representative or www.he-solar.com

DECEMBER 2022

