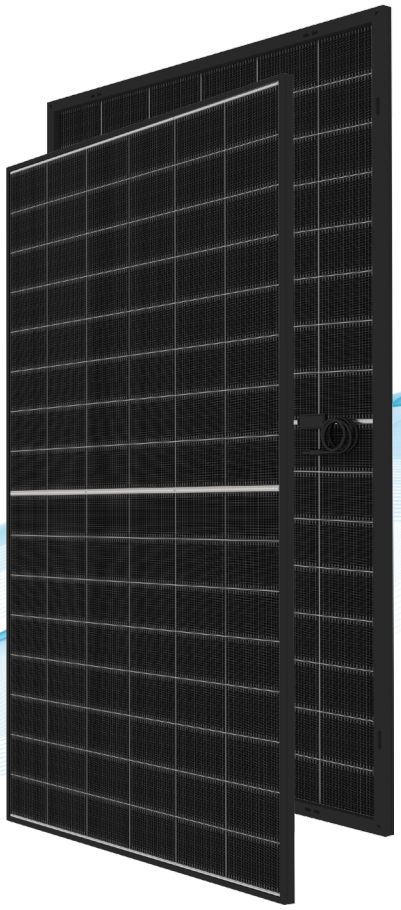
HD HYUNDAI SOLAR MODULE

HeteroMax™ (CE-BF(ZB) Series)

Premium N-Type HJT module

HiT-H450CE-BF(ZB) | HiT-H455CE-BF(ZB) | HiT-H460CE-BF(ZB) | HiT-H465CE-BF(ZB) | HiT-H470CE-BF(ZB)

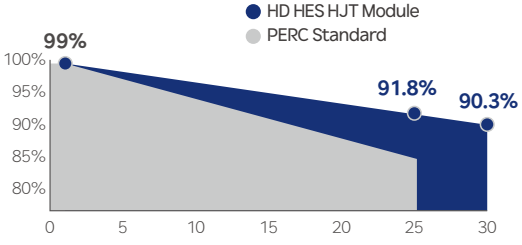


- 23.5% — 23.5% High Efficiency
- HJT — High-End Heterojunction Technology
- Enhanced Power Generation with low Temp. Coefficient
- More Power Generation In Low Light
- For Residential

HD Hyundai's Warranty Provisions

30 YEARS
- 30-Year Product Warranty
  - Materials and workmanship

30 YEARS
- 30-Year Performance Warranty
  - First year degradation: 1%
  - Linear warranty after initial year: with 0.3%p annual degradation, 90.3% is guaranteed up to 30years



*Refer to HD HES standard warranty for details.

Certification

- ISO 9001:2015: Quality Management System
- ISO 14001:2015: Environmental Management System
- ISO 45001:2018: Occupational Health and Safety Management System
- IEC 61215, IEC 61730

Electrical Characteristics (STC*)

HiT-HxxxCE-BF(ZB)						
Item	Unit	450	455	460	465	470
Nominal Output (Pmax)	W	450	455	460	465	470
Open Circuit Voltage (Voc)	V	36.19	36.36	36.43	36.51	36.58
Short Circuit Current (Isc)	A	15.19	15.27	15.35	15.45	15.60
Voltage at Pmax (Vmpp)	V	31.39	31.57	31.64	31.71	31.78
Current at Pmax (Impp)	A	14.44	14.52	14.60	14.70	14.79
Module Efficiency	%	22.5	22.7	23.0	23.2	23.5
Power Selection	W	0 ~ +5				
Temperature Coefficient of Pmax	%/℃	-0.24				
Temperature Coefficient of Voc	%/℃	-0.22				
Temperature Coefficient of Isc	%/℃	0.04				
Bifaciality	%	90±5				

*STC : Irradiance 1,000 W/m², cell temperature 25℃, AM=1.5 / Test uncertainty for Pmax ±3%; Voc ±3%; Isc ±4%

BNPI** (Bifacial Nameplate Irradiance)

Item	Unit	450	455	460	465	470
Nominal Output (Pmax)	W	505	510	515	520	525
Open Circuit Voltage (Voc)	V	36.19	36.36	36.43	36.51	36.58
Short Circuit Current (Isc)	A	17.03	17.12	17.21	17.32	17.49
Voltage at Pmax (Vmpp)	V	31.39	31.57	31.64	31.71	31.78
Current at Pmax (Impp)	A	16.19	16.28	16.35	16.44	16.57

**The electrical properties of BNPI are measured under the irradiance corresponding to 1000 W/m² on the module front and 135 W/m² on the module rear.

Mechanical Characteristics

Dimensions	1,762 mm (L) x 1,134 mm (W) x 30 mm (H)
Weight	21kg
Solar Cells	N-Type HJT, 96 (6x16) monocrystalline half-cut bifacial cells
Output Cables	Cable : 4mm² / (+)1,250 mm, (-)1,250 mm / Customized length Connector : Original Stäubli MC4 or MC4-EVO2A
Junction Box	3-part, 3 bypass diodes, IP68 rated
Construction	Front : 1.6mm Double-coated Rolled Toughened Glass Rear : 1.6mm 3-hole_Glazing without Chamfering
Frame	Black Anodized aluminum alloy

Shipping Configurations

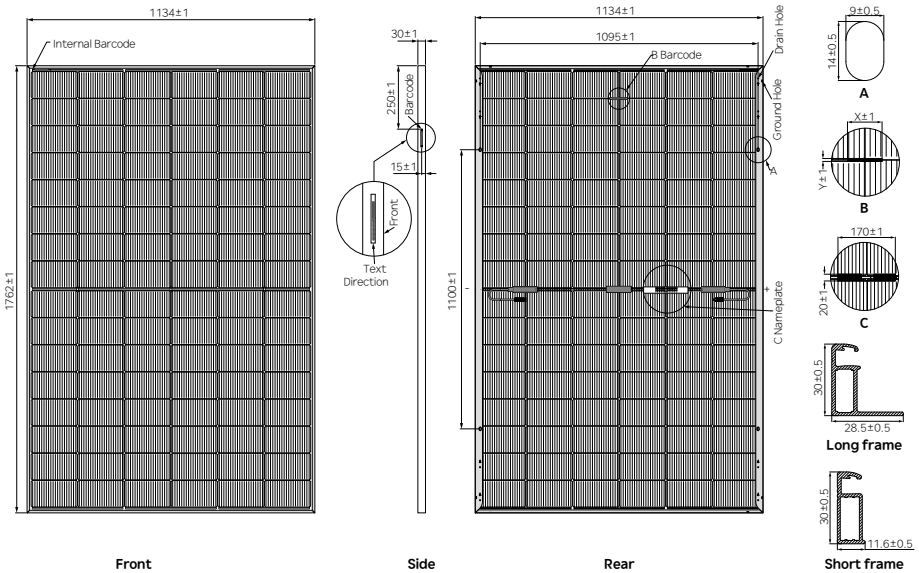
Container Size (HC)	40'	Modules Per Pallet (pcs)	36
Pallets Per Container (pcs)	26	Modules Per Container (pcs)	936

Installation Safety Guide

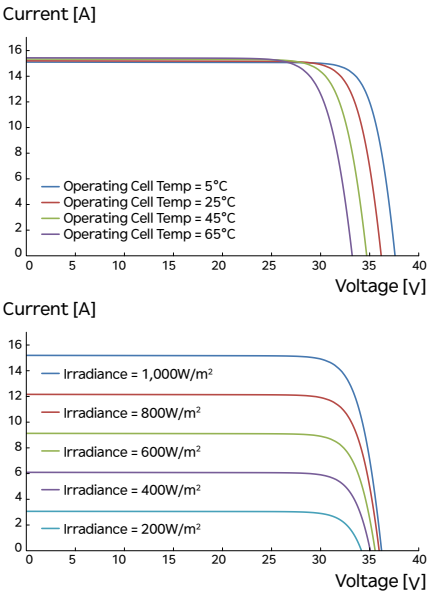
- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not damage or scratch the rear surface of the module.
- Do not handle or install modules when they are wet.

Nominal Module Operation Temperature	44℃ ± 2℃
Operating Temperature	-40℃~+85℃
Maximum System Voltage	DC 1,500 V
Maximum Reverse Current	30A
Maximum Test Load	Front 5,400Pa Rear 2,400Pa

Module Diagram (unit : mm)



I-V Curves (HiT-H450CE-BF(ZB))



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HD Hyundai Energy Solutions reserves the right to update or modify the specifications and features listed in this datasheet without prior notice. Always check the latest version of the datasheet for accurate information. Before using the product, please refer to the Installation and Operation Manual and Warranty. We retain the right of final interpretation.

HD HYUNDAI ENERGY SOLUTIONS