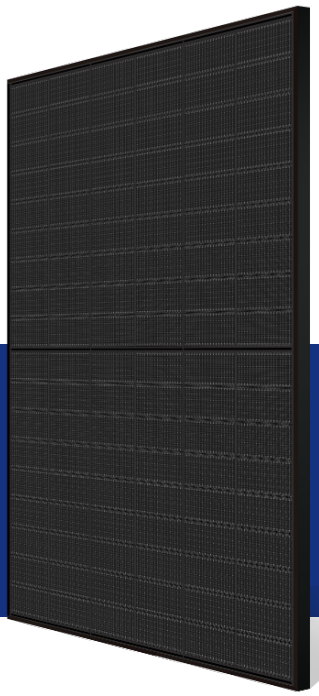
HD HYUNDAI SOLAR MODULE

MF SERIES

HeteroMax™
Premium N-Type HJT module

HiT-H430~450MF-FB



- High-End Heterojunction Technology
- Full Black Design for Home roof
- More Power Generation In Low Light
- Designed in Korea
- 30 YEAR Product & Performance Warranty

23% High Efficiency with HJT Technology

HJT (Heterojunction Technolgy) cells with excellent light absorption and passivation effects can increase module efficiency compared to TOPCon and PERC modules.

Enhanced Power Generation with low Temp. Coefficient

Low temperature coefficient (-0.26%/℃) enables modules to generate more electricity than PERC & TOPCon modules in high temperature environments which allows the perfect suitability for rooftop installation with large temperature fluctuations.

Long-Term Reliability

HeteroMax™ feature a double-glass design that shows the best moisture resistance. It enhances waterproof performance and ensures durability and reliability in diverse environments.

No LID/PID

HJT cells based on n-type silicon wafer result in no LID (light Induced degradation) and the use of TCO film enables no PID (potential induced degradation) guaranteeing more energy and profitability.

Certified Test Labs

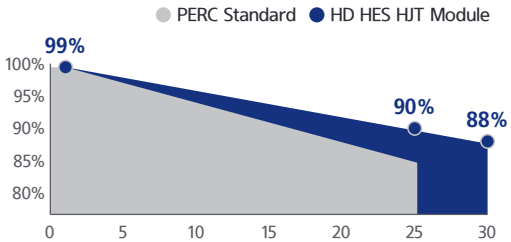
HD Hyundai's R&D center is an accredited test laboratory of UL, international certification institutions, and guarantees the best quality in the world through rigorous product testing.

Reliable Warranty

HD Hyundai Energy Solutions, Global brand with powerful financial strength, offers a 30-year warranty and comprehensive customer after-sales service.

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 second year: with 0.375%p annual degradation, 88% is guaranteed up to 30 years



*Refer to HD HES standard warranty for details.

Certification

TÜV SÜD · CE · PV CYCLE · MCS CERTIFIED

About HD Hyundai Energy Solutions

Established in 1972, HD Hyundai Group is one of the most trusted names in the heavy industries sector and is a Fortune 500 company. As a global leader and innovator, HD Hyundai is committed to building a future growth engine by developing and investing heavily in the field of renewable energy.

As a core energy business entity of HD Hyundai, HD Hyundai Energy Solutions has strong pride in providing high-quality PV products to more than 3,000 customers worldwide.

Electrical Characteristics (STC*)

		HiT-HxxxMF-FB				
		430	435	440	445	450
Nominal Output (Pmpp)	W	430	435	440	445	450
Open Circuit Voltage (Voc)	V	41.37	41.64	41.91	42.18	42.44
Short Circuit Current (Isc)	A	12.95	13.00	13.05	13.10	13.15
Voltage at Pmax (Vmpp)	V	34.60	34.86	35.12	35.38	35.63
Current at Pmax (Impp)	A	12.43	12.48	12.53	12.58	12.63
Module Efficiency	%	22.02	22.28	22.53	22.79	23.04
Maximum System Voltage	V	DC 1,500V (IEC)				
Temperature Coefficient of Pmax	%/°C	-0.26				
Temperature Coefficient of Voc	%/°C	-0.24				
Temperature Coefficient of Isc	%/°C	0.04				

*STC : Irradiance 1,000 W/m², cell temperature 25°C, AM=1.5 / Measurement tolerances Pmpp ±3%; Voc ±3%; Isc ±5%

NOCT**

		430	435	440	445	450
Nominal Output (Pmpp)	W	327	331	335	338	342
Voltage at Pmax (Vmpp)	V	32.64	32.91	33.17	33.34	33.60
Current at Pmax (Impp)	A	10.02	10.06	10.10	10.14	10.18
Open Circuit Voltage (Voc)	V	39.48	39.74	40.00	40.26	40.50
Short Circuit Current (Isc)	A	10.44	10.48	10.52	10.56	10.60

**NOCT : Irradiance 800 W/m², Ambient temperature 20°C, Wind Speed 1 m/s.

Mechanical Characteristics

Dimensions	1,722 mm (L) x 1,134 mm (W) x 30 mm (H)
Weight	22 kg
Solar Cells	N-Type HJT, 182mm x 91.75mm, 108 cells
Output Cables	Cable : (+)1,200 mm, (-)1,200mm / 4mm² / UV resistant Connector : Stäubli MC4-Evo2
Junction Box	IP68
Construction	Front Glass : anti-reflective solar glass, 1.6mm Rear Glass : solar glass, 1.6mm
Frame	Anodized aluminum alloy

Shipping Configurations

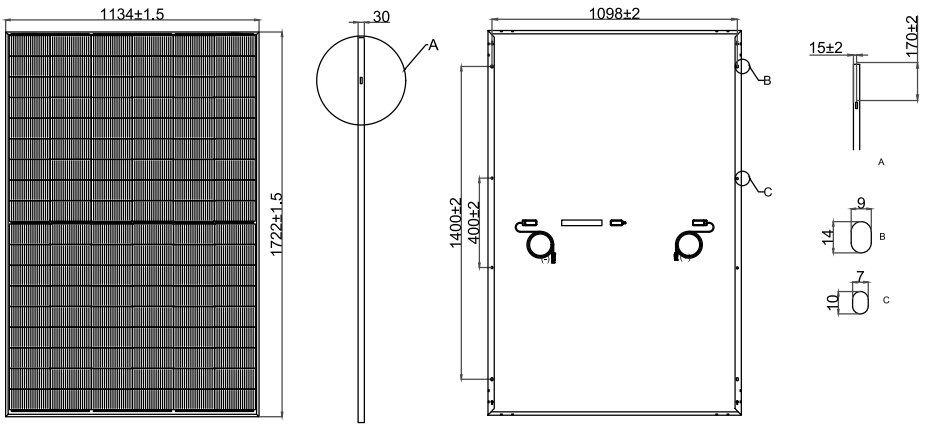
Container Size	40	**Modules Per Pallet** (pcs)	36
Pallets Per Container	26	**Modules Per Container** (pcs)	936

Installation Safety Guide

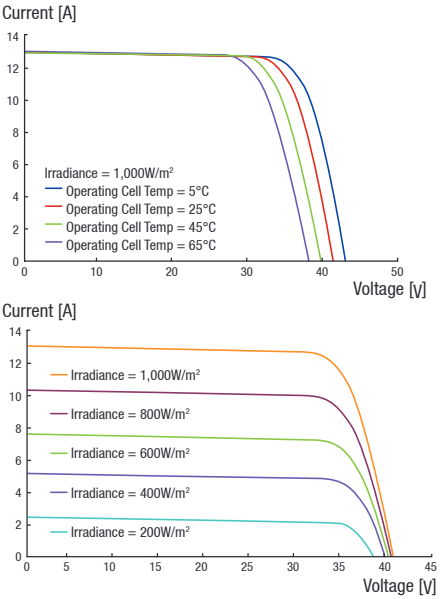
- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not damage or scratch the rear surface of the module.
- Do not handle or install modules when they are wet.

Nominal Operating Cell Temp. (NOCT)	44°C ± 2°C
Operating Temperature	-40°C ~ +85°C
Maximum System Voltage	DC 1,500V (IEC)
Maximum Reverse Current	25A
Maximum Test Load	Front 5,400 Pa Rear 2,400 Pa

Module Diagram (unit : mm)



I-V Curves (HiT-H430MF-FB)



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