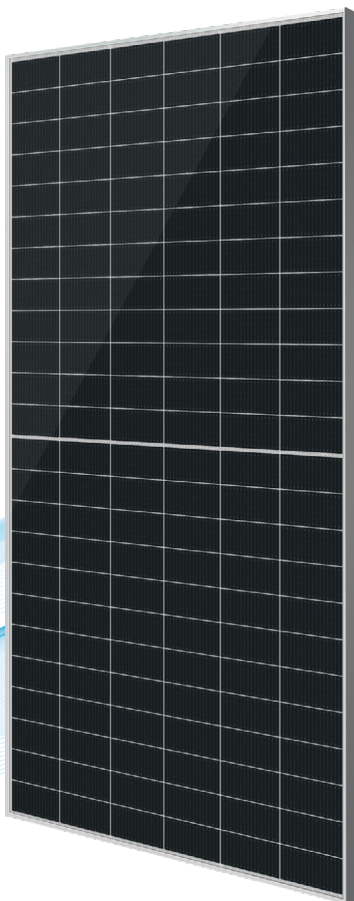


HD HYUNDAI SOLAR MODULE

NI Series

Premium N-Type TOPCon Module

HiN-T590NI | HiN-T595NI | HiN-T600NI



23.23%
High Efficiency



High-End
TOPCon
Technology



Higher
Bifaciality



Long-Term
Reliability



Rooftop
Applications



For Commercial
& Utility
Applications

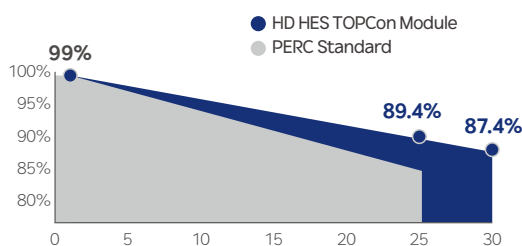
HD Hyundai's Warranty Provisions

12
YEARS

- 12-Year Product Warranty
- Materials and workmanship

30
YEARS

- 30-Year Performance Warranty
- First year degradation: 1%
- Linear warranty after initial year:
with 0.4%p annual degradation,
87.4% is guaranteed up to 30years



*Refer to HD HES standard warranty for details.

Certification



- ISO 9001 : Quality management systems
- ISO 14001 : Environmental management systems
- ISO 45001 : Occupational health and safety management systems
- UL 61730 : Photovoltaic (PV) module safety qualification (CSA)
- IEC 61701 : Salt mist corrosion testing
- IEC 62716 : Ammonia corrosion testing
- IEC 62804 : Potential Induced Degradation (PID) testing
- IEC 60068-2-68 : Sand and dust testing for environmental durability

Electrical Characteristics

HiN-TxxxNI		HiN-T590NI		HiN-T595NI		HiN-T600NI	
Item	Unit	BNPI		BNPI		BNPI	
Nominal output (Pmax)	W	590	654	595	659	600	665
Open circuit voltage (Voc)	V	51.9	51.9	52.1	52.1	52.3	52.3
Short circuit current (Isc)	A	14.47	16.03	14.53	16.10	14.59	16.17
Voltage at Pmax (Vmpp)	V	43.2	43.2	43.4	43.4	43.6	43.6
Current at Pmax (Impp)	A	13.66	15.14	13.72	15.20	13.77	15.26
Module efficiency	%	22.84		23.03		23.23	
Power Class Sorting	W	0 ~ +5					
Temperature coefficient of Pmax	%/°C	-0.30					
Temperature coefficient of Voc	%/°C	-0.25					
Temperature coefficient of Isc	%/°C	0.046					
Bifaciality	%	80±10					

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

Additional Power Gain from rear side					
Pmpp gain	Pmpp [W]	Vmpp [V]	Impp [A]	Voc [V]	Isc [A]
5%	625	43.4	14.41	52.1	15.26
15%	684	43.4	15.78	52.1	16.71
25%	744	43.4	17.15	52.1	18.16

*Electrical characteristics with different rear power gain (reference to 585W)

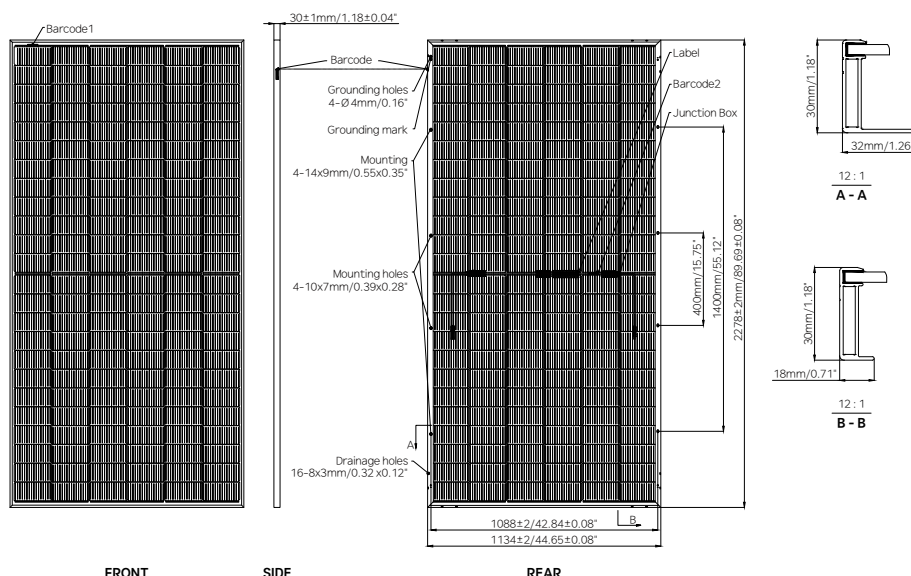
Mechanical Characteristics

Dimensions	2,278mm (L) x 1,134mm (W) x 30mm (H) (89.7in x 44.7in x 1.2in)
Weight	31.5 kg (69.5bs)
Solar Cells	N-Type TOPCon, 144 (6x24) monocrystalline 16BB half-cut bifacial cells
Output Cables	Cable : (+)1,200mm(47.2in), (-)1,200mm(47.2in) Connector : MC4 Genuine, IP68
Junction Box	3-part, 3 bypass diodes, IP68 rated
Construction	Front : 2.0mm(0.08in) semi-tempered solar glass with high transmittance and anti-reflective coating Rear : 2.0mm(0.08in) semi-tempered solar glass
Frame	Anodized aluminum alloy

Shipping Configurations

Container Size (HC)	40'	Modules Per Pallet (pcs)	36
Pallets Per Container	20	Modules Per Container (pcs)	720

Module Diagram (unit : mm)



Installation Safety Guide

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

Nominal Module Operation Temperature	44°C ± 2°C
Operating Temperature	-40°C~+85°C
Maximum System Voltage	DC 1,500 V
Maximum Reverse Current	30A
Maximum Test Load	Front 5,400Pa Rear 2,400Pa
Fire Performance	Type 29

I-V Curves (HiN-T595NI)

