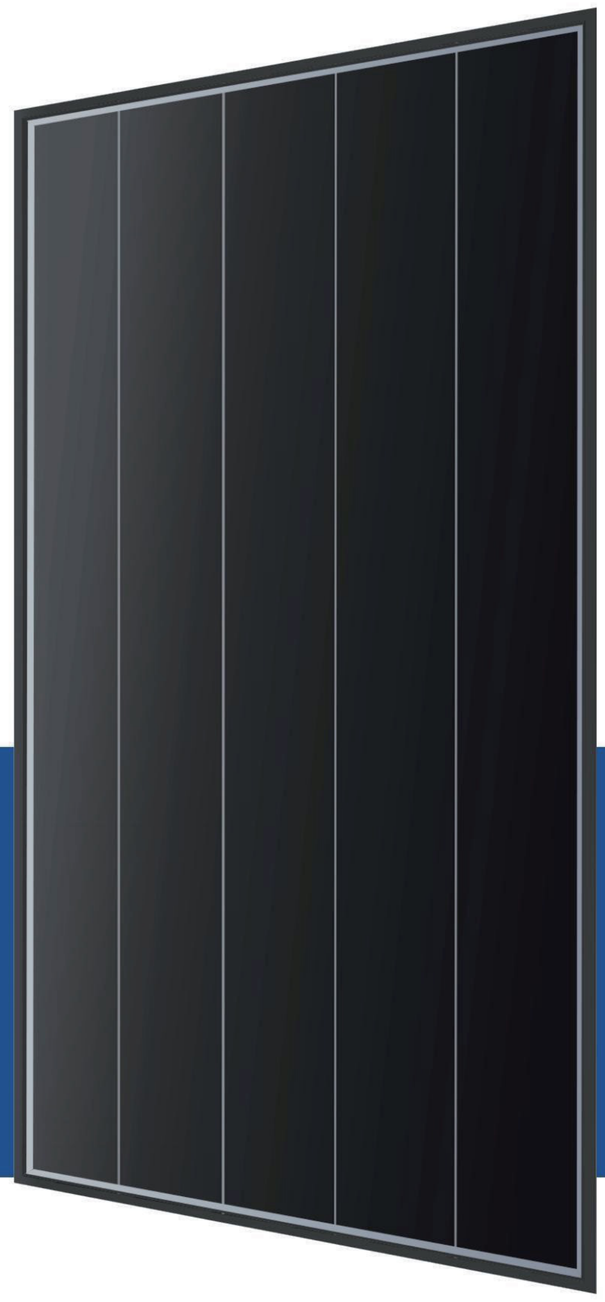
HYUNDAI SOLAR MODULE

DG SERIES

G12 PERC Shingled

HiE-S415DG HiE-S420DG HiE-S425DG



Shingled Technology

For Both Residential & Commercial Applications

More Power Generation In Low Light

G12 PERC Shingled

G12 PERC Shingled Technology provides ultra-high efficiency with better performance in low irradiation. Maximizes installation capacity in limited space.

Anti-LID / PID

Both LID(Light Induced Degradation) and PID(Potential induced Degradation) are strictly eliminated to ensure higher actual yield during lifetime.

Mechanical Strength

Tempered glass and reinforced frame design withstand rigorous weather conditions such as heavy snow and strong wind.

Reliable Warranty

Global Brand with powerful financial strength provide reliable 25-year warranty. **(Australia and Europe Only)**

Corrosion Resistant

Various tests under harsh environmental conditions such as ammonia and salt-mist passed

UL / VDE Test Labs

Hyundai's R&D center is an accredited test laboratory of both UL and VDE.

Hyundai's Warranty Provisions

- **15-Year Product Warranty**
  - On material and workmanship
    25-Year for Australia and Europe Only
- **25-Year Performance Warranty**
  - Initial year: 98.0%
  - Linear warranty after second year: with 0.55%p annual degradation, 84.80% is guaranteed up to 25 years

About Hyundai Energy Solutions

Established in 1972, Hyundai Heavy Industries 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, Hyundai Heavy Industries 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 HHI, Hyundai Energy Solutions has strong pride in providing High-quality PV products to more than 3,000 customers worldwide.

Certification

HYUNDAI ENERGY SOLUTIONS

Electrical Characteristics

		Mono-Crystalline Module (HiE-S___DG)		
		425	420	415
Nominal Output (Pmpp)	W	425	420	415
Open Circuit Voltage(Voc)	V	41.7	41.6	41.5
Short Circuit Current (Isc)	A	13.03	12.92	12.80
Voltage at Pmax (Vmpp)	V	34.6	34.5	34.4
Current at Pmax (Impp)	A	12.30	12.19	12.08
Module Efficiency	%	21.4	21.1	20.9
Cell Type	-	PERC Mono-Crystalline Silicon Shingled		
Maximum System Voltage	V	1,500		
Temperature Coefficiency of Pmax	%/°C	-0.34		
Temperature Coefficiency of Voc	%/°C	-0.27		
Temperature Coefficiency of Isc	%/°C	0.04		

*All data at STC(Standard Test Conditions). Above data may be changed without prior notice.
*Tolerance of Pmax:0~+5W.
* Performance deviation of Voc [V], Isc [A], Vm[V] and Im[A]:±3%.

Mechanical Characteristics

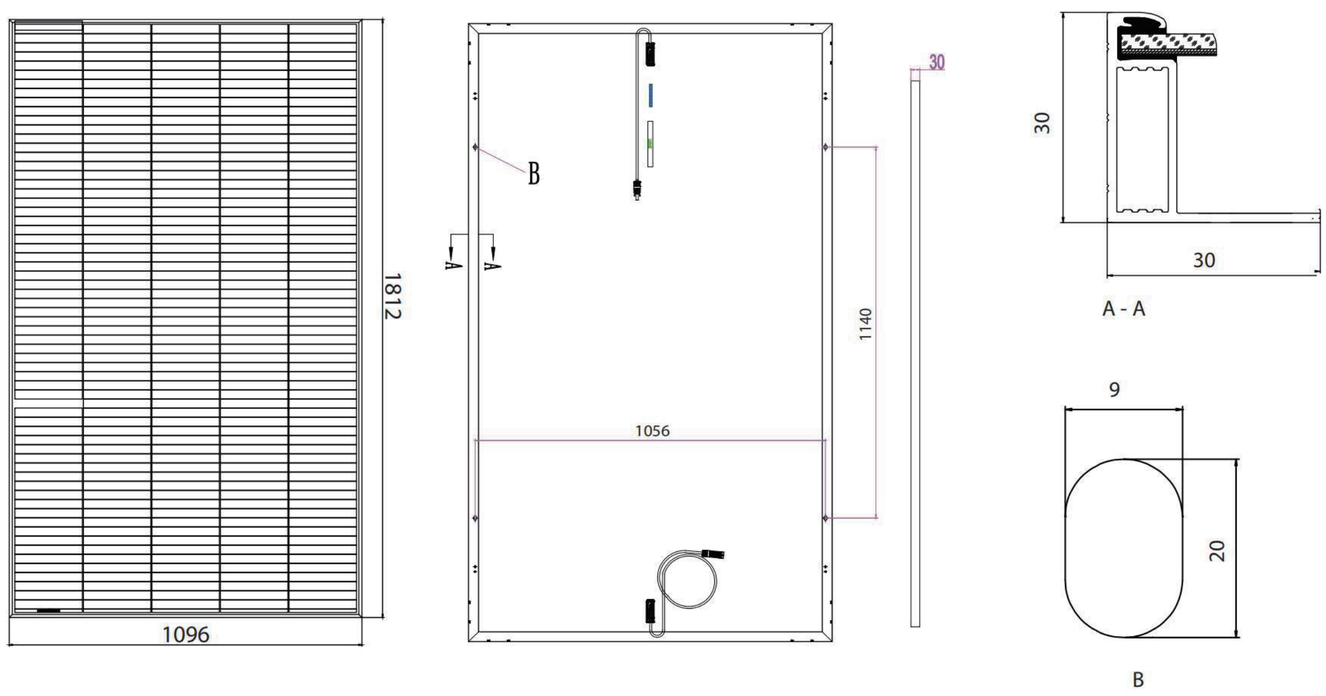
Dimensions	1,812 × 1,096× 30 mm (L × W × H)		
Weight	20.8kg		
Solar Cells	305Cells, PERC Mono-crystaline Shingled (210 × 210mm)		
Output Cables	4mm²,+500mm/-1100mm(Vertical), +220mm/-180mm(Horizontal)	Connector	Stäubli : MC4-Evo2
Junction Box	IP68, TUV&UL, two diodes		
Construction	Front Glass: AR Coated tempered glass, 3.2mm Encapsulation: EVA (Ethylene-Vingl-Acetate)		
Frame	Anodized Aluminum		

Installation Safety Guide

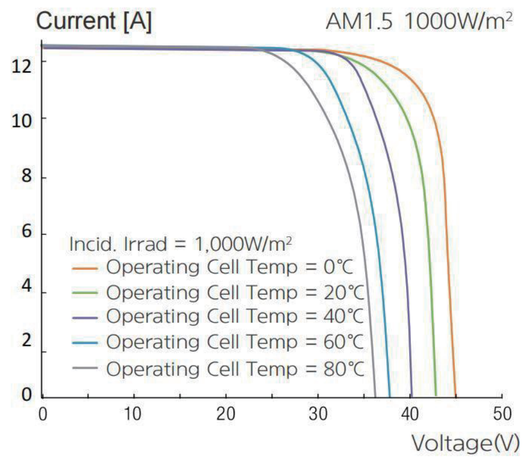
- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not damage or scratch the rear surface of the module.
- Do not handle or install modules when they are wet.

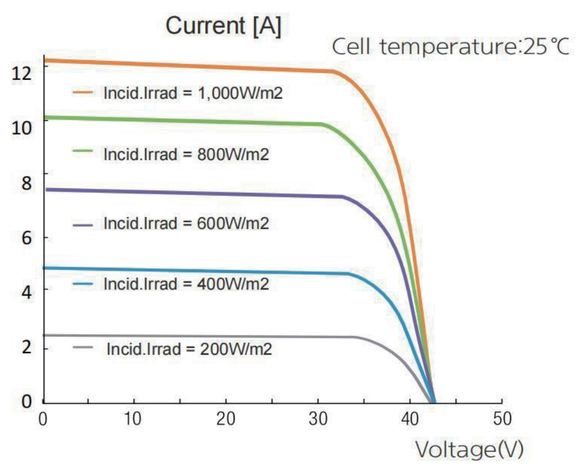
Nominal Operating Cell Temperature	42.3℃ (±2℃)
Operating Temperature	-40 ~ 85 ℃
Maximum System Voltage	DC 1,500 / 1,000 (IEC)
Series Fuse Rating [A]	25
Maximum Surface Load Capacity	Front 5,400 Pa Rear 2,400 Pa

Module Diagram (Unit: mm)



I-V Curves





Manufactured in China

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