








144 half-cut cells

Nº 1 HJT LARGE-SCALE PRODUCTION FACILITY IN EUROPE

HETEROJUNCTION BIFACIAL PV MODULE

HVL 144 GG 440 MBB, HVL 144 GG 445 MBB, HVL 144 GG 450 MBB



-  Up to 450 Wp (+81 Wp at 20% bifacial gain)
-  Module efficiency up to 24.8% (BiFi +20%)
-  Glass-glass bifacial design
-  Operating temperatures from -40 to +85 °C
-  30 years linear performance warranty, 15 years product warranty
-  Less power losses at high temperatures due to low temperature coefficient
-  N-type wafer based HJT cell boasts extra small light induced (LID) and close to zero potential induced degradation (PID)

LOW TEMPERATURE COEFFICIENT

-0.26%/°C

vs. from -0.35 to -0.42 %/°C
for mass market PV modules

EXTRA HIGH BIFACIAL COEFFICIENT

up to **90%**

vs. 70% for mass market PV modules

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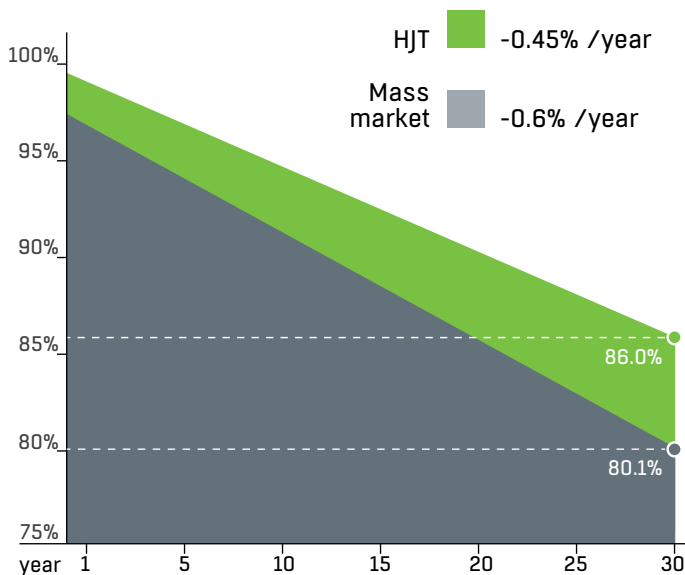
ELECTRICAL PARAMETERS*

Power output (P _{max}), STC, W	440	445	450
Bifacial gain +10%** , W	480	485	491
Bifacial gain +20%** , W	519	525	531
Power output sorting, W	+5		
Module efficiency*, %	20.5	20.8	21
Current at Pmax (Impp), A	9.94	10.03	10.12
Voltage at Pmax (Vmpp), V	44.34	44.52	44.7
Short-circuit current (Isc), A	10.4	10.45	10.5
Open-circuit voltage (Voc), V	53.42	53.64	53.86

MAIN CHARACTERISTICS

Maximum system voltage, V	1500
Fire resistance rating	C
Weight max, kg	32
Cable connector type	MC4 compatible
Cable length, m	0.3/on demand
Max. static load front (e.g. snow), Pa	5400
Max. static load back (e.g. wind), Pa	2400
Front/Back glass thickness	2/2 mm
Photovoltaic technology cable	4.0 mm
Encapsulant material	POE/POE

LINEAR PERFORMANCE WARRANTY



TEMPERATURE CHARACTERISTICS

Operating temperature, °C	-40 — +85
Temperature coefficient, Voc, %/°C	-0.244
Temperature coefficient, Isc, %/°C	0.055
Temperature coefficient, P _{max} , %/°C	-0.26

MODULE DIMENSIONS

Width	Length	Thickness
1039±2 mm	2064±2 mm	35±0.5 mm

* The given values are based on production average and are for information purposes only Test conditions STC

** Additional output from the back side as percentage of the irradiance at STC

Hevel Group is a reputable and reliable PV cells and modules manufacturer with 10-year experience:

- WORLD'S LEADING IN HOUSE RESEARCH AND DEVELOPMENT IN HJT
- ONE OF THE LARGEST INDUSTRIAL HJT PRODUCTION*
- HIGH QUALITY PV EQUIPMENT AND MATERIALS

* Manufacturing system complies with ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018