Heckert Solar

MADE IN GERMANY

German engineering for consistently maximum energy yield.

APOLLON 2.0

Bifacial Shingle Matrix Module

445–460 Wp



- Developed by Fraunhofer ISE
- Optimal shading behaviour
- Brilliant full-black design
- Bifacial glass-glass module
- Sustainable materials
- Free of toxic lead and PFAS



Designed, manufactured and tested in Germany.

30	30	25
Years product warranty	Years performance warranty	Years of experience in photovoltaics

Heckert Solar Quality promise

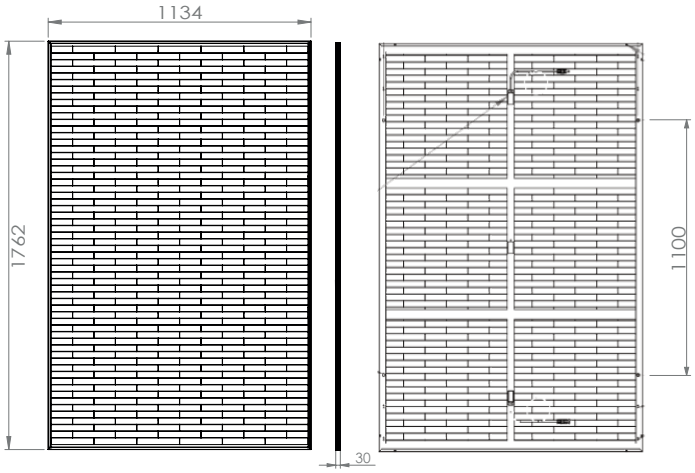
Personal service directly from the manufacturer

Sustainable out of responsibility

APOLLON 2.0 445-460 Wp

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MODULE DRAWING (UNIT: MM)



MODULE SPECIFICATIONS

Cell Technology	N-type TOPCon, bifacial
Cells	390 Shingle cells, matrix-technology
Dimensions	1762×1134×30 mm
Weight	23,5 kg
Front Glass	2mm heat strengthened AR-glass
Rear Glass	2mm heat strengthened glass
Frame	30mm black anodized aluminium frame
Junction Box	3 diodes, IP68, according to IEC 62790
Cable/ Connector	4mm² Stäubli MC4-EVO 2A connector
Cable Length	2 x 1200mm
Max. Test-Load, push/pull	+5400Pa / -2400Pa
Max. Design-Load, push/pull	+3600Pa / -1600Pa

ELECTRICAL SPECIFICATIONS[1] (STC[2])

Rated Power P_{MPP} (Wp)	445	450	455	460
Max. Power Current I_{MPP} (A)	12,03	12,15	12,27	12,39
Max. Power Voltage V_{MPP} (V)	37,00	37,04	37,08	37,12
Short-circuit Current I_{SC} (A)	12,83	12,87	12,91	12,94
Open-circuit Voltage V_{OC} (V)	44,11	44,13	44,15	44,17
Module Efficiency (%)	22,3	22,5	22,8	23,0

BIFACIAL POWER (135 W/m² ON THE REAR SIDE[4])

Max. Power P_{MAX} (W)	457	462	467	472
Max. Power Current I_{MPP} (A)	12,29	12,41	12,53	12,66
Max. Power Voltage V_{MPP} (V)	37,20	37,24	37,28	37,32
Short Circuit Current I_{SC} (A)	13,03	13,07	13,11	13,14
Open Circuit Voltage V_{OC} (V)	44,31	44,33	44,35	44,37

TEMPERATURE CHARACTERISTICS

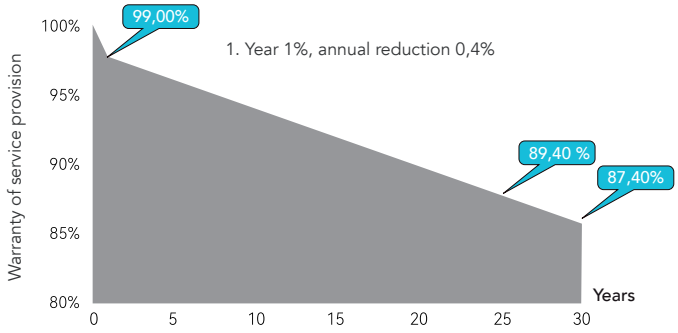
Nominal Module Operating Temperature[3]	42 ± 2 °C
Temperature Coefficient P_{MPP} (%/°C)	- 0,34
Temperature Coefficient V_{OC} (%/°C)	- 0,23
Temperature Coefficient I_{SC} (%/°C)	+ 0,031

OPERATING CONDITIONS

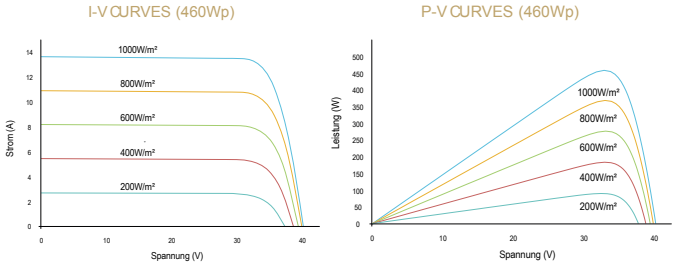
Operating Temperature Range	-40 ~ +85 °C
Max. System Voltage (VDC)	1500
Max Series Fuse Rating I_R (A)	25
String fuse required from	2 parallel strings
Power Performance Tolerance (Wp)	0 / +4,99

[1]Measurements in accordance with IEC 60904-3; measurement tolerance: ISC ±4%, VOC ±3%, PMPP ±3%; [2]Standard Test Conditions (STC): irradiance of 1,000 W/m² with AM 1.5 spectrum at a cell temperature of 25°C. [3]NMOT value: Nominal Module Operating Temperature = nominal operating module temperature at an irradiance of 800 W/m² and an ambient temperature of 20 °C. [4]BNPI: Front irradiance 1,000 W/m², rear irradiance 135 W/m², module temperature 25 °C, AM 1.5. Loads in accordance with IEC 61215-2; design load = planning/rating load, test load = test load. All values comply with DIN EN 50380. Subject to technical changes. Please refer to our installation instructions.

LINEAR PERFORMANCE WARRANTY



CURRENT-VOLTAGE-CHARACTERISTICS



CERTIFICATES & WARRANTIES

IEC 61215, IEC 61730
IEC 62716: Ammonia Corrosion Test
IEC 61701: Salt Mist Corrosion Test
Application Class A (IEC 61730-ANSI/UL790)
Protection Class II (DIN EN 61140)
Fire Class: A (IEC 61730 – ANSI/UL 790)
Product warranty: 30 Years
Performance warranty: 30 Years
Degradation: year 1: 1.0 %, years 2–30: 0.4 %
WEEE-Reg.-No.: DE 42676826
30 modules per pallet

TÜVRheinland®
Genau. Richtig.

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As of: 11/2026 I Illustration similar. Heckert Solar GmbH reserves the right to make changes to specifications