



Heckert Solar

FUTURE STARTS IN GERMANY



Bifacial Back-Contact-Module

ZEUS 3.0 FullBlack

475-480WP



OPTIMAL SHADING BEHAVIOUR



BETTER TEMPERATURE BEHAVIOUR



MODULE EFFICIENCY UP TO 23.5%



HIGH MODULE PERFORMANCE UP TO 480WP



BRILLIANT FULL BLACK DESIGN

DE

GERMAN
WARRANTOR



DIRECT
SERVICE

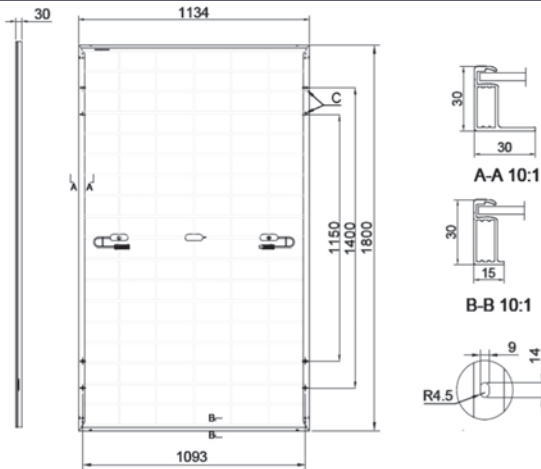
**30
YEARS**

PRODUCT
WARRANTY

**30
YEARS**

PERFORMANCE
WARRANTY

DIMENSIONS IN MM



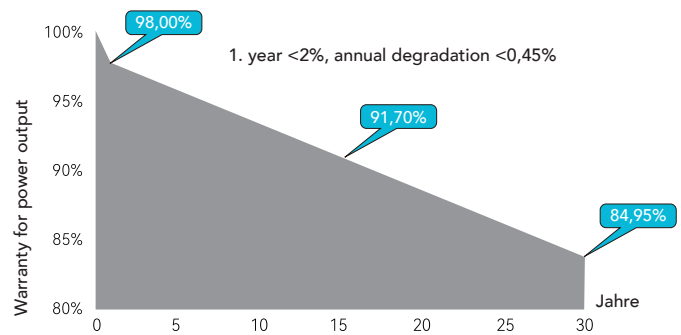
MODULE SPECIFICATIONS

Cell Technology	N-type Back-Contact Technology, TOPCon
Cell Type	108 half cut cells (6x18)
Dimensions	1800 x 1134 x 30mm
Weight	25,0 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
Connecting Table	4mm ² Stäubli MC4-EVO 2A connector +/- (1500V)
Cable Length	2 x 1200mm
Max. Test-Load, push/pull	+5400Pa / -2400Pa
Max. Design-Load, push/pull	+3600Pa / -1600Pa

ELECTRICAL SPECIFICATIONS¹ (STC²)

Rated Power P_{MPP} (Wp)	475	480
Max. Power Current I_{MPP} (A)	14,23	14,33
Max. Power Voltage V_{MPP} (V)	33,40	33,51
Short-circuit Current I_{SC} (A)	14,88	14,98
Open-circuit Voltage V_{OC} (V)	40,42	40,53
Module Efficiency (%)	23,3	23,5

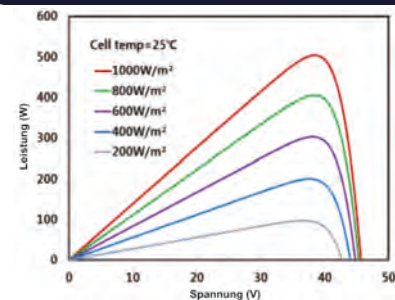
LINEAR POWER OUTPUT WARRANTY



ELECTRICAL SPECIFICATIONS¹ (NMOT³)

Rated Power P_{MPP} (Wp)	361	365
Max. Power Current I_{MPP} (A)	11,39	11,48
Max. Power Voltage V_{MPP} (V)	31,71	31,82
Short-circuit Current I_{SC} (A)	11,93	12,02
Open-circuit Voltage V_{OC} (V)	38,39	38,50

I-V CURVE



CERTIFICATES & WARRANTIES

IEC 61215, IEC 61730*
 IEC 62716: Ammonia Corrosion*
 IEC 61701: Salt Mist Corrosion*
 IEC TS 62804: PID; IEC TS 63342: LeTID*
 IEC 60068: Dust & Sand*
 Fire protection class: A (according to UL 790)*
 Hail resistance class: HW5
 Product Warranty: 30 years
 Performance Warranty: 30 years
 WEEE-Reg.-No.: DE 42676826
 36 Modules/Palettes, 936 Modules/40'HC
 *under certification



BIFACIAL PERFORMANCE (STC)

5%	P_{max} (Wp)	494
10%	P_{max} (Wp)	517
15%	P_{max} (Wp)	541
20%	P_{max} (Wp)	564
25%	P_{max} (Wp)	588

TEMPERATURE CHARACTERISTICS

Nominal Module Operating Temperature ³	42 ± 2°C
Temperature Coefficient P_{MAX} (%/°C)	- 0,26
Temperature Coefficient V_{OC} (%/°C)	- 0,20
Temperature Coefficient I_{SC} (%/°C)	+ 0,05

OPERATING CONDITIONS

Operating temperature	-40 ~ +85°C
Max. System Voltage (VDC)	1500
Reverse current I_R (A)	30
Max. Power tolerance (Wp)	0 / +4,99
Maximum bifaciality (%)	80 ± 5

¹Measurements according to IEC 60904-3, measurements tolerance: I_{SC} ±4%, V_{OC} ±4%, P_{MPP} ±4%, bifaciality: 80% ± 5%, ²Standard Test Conditions STC: irradiation 1.000 W/m² with a spectrum of AM 1,5 at a cell temperature of 25°C. Maximum reduction in efficiency at 200W/m²: 2%, ³NMOT-Data: Nominal Module Operating Temperature at irradiation of 800W/m² and an ambient temperature of 20 °C. Operation temperature range between -40°C and +85°C. All dimensions +/-3mm. Technical specifications subject to changes. No liability is assumed for particulars. Please follow our installations instructions.