

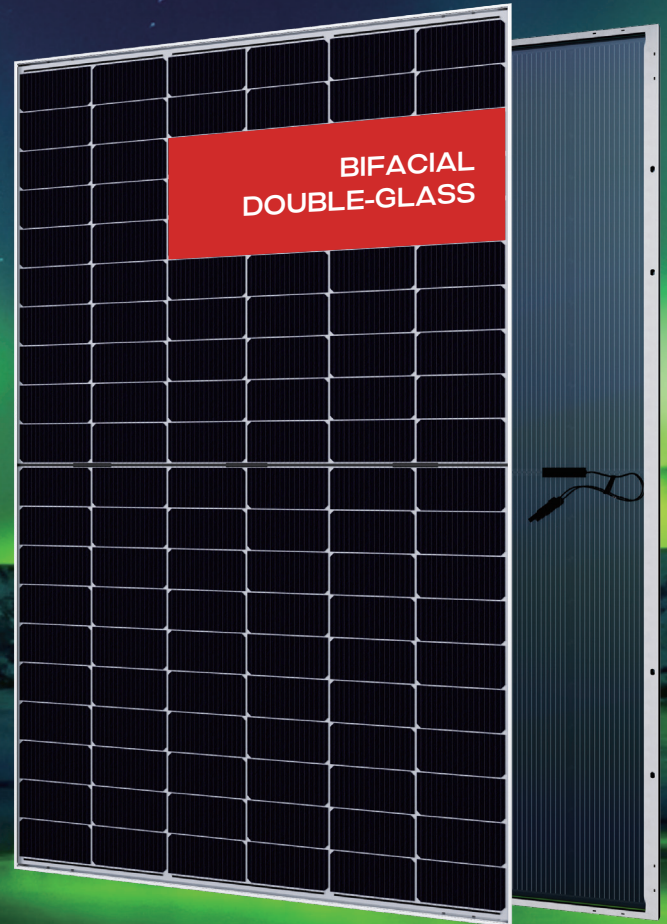
# 440W-460W

MD-120BD

21.35%  
MAXIMUM EFFICIENCY

120  
HALF CELLS

- ◆ Established durability and yield data
- ◆ High flexibility with BOM



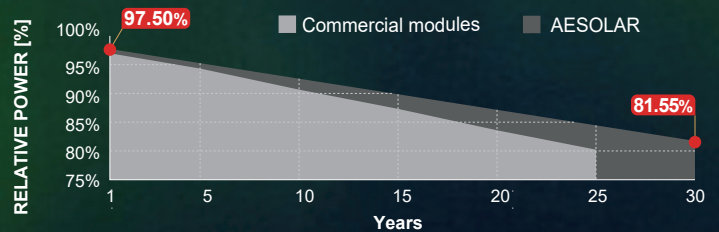
Ver. 26.1.1

30 YEARS  
Performance Warranty

up to 30 YEARS\*  
Product Warranty

\*The regular product warranty is 15 years, please refer to the latest version of AESOLAR Limited Warranty for the duration of the product warranty under special conditions. For extensions, please contact AESOLAR staff.

### OUR PERFORMANCE WARRANTY



LID  
RESISTANT



PID  
RESISTANT



SALT CORROSION  
RESISTANT



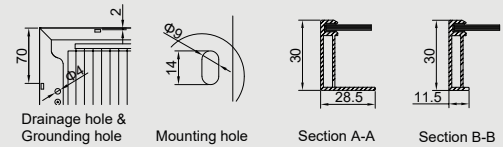
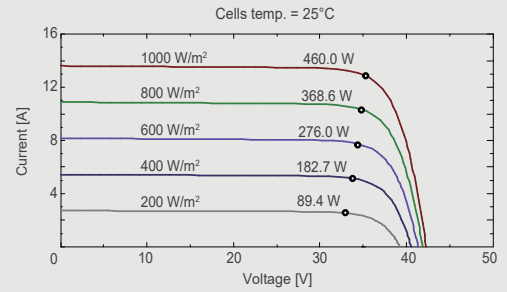
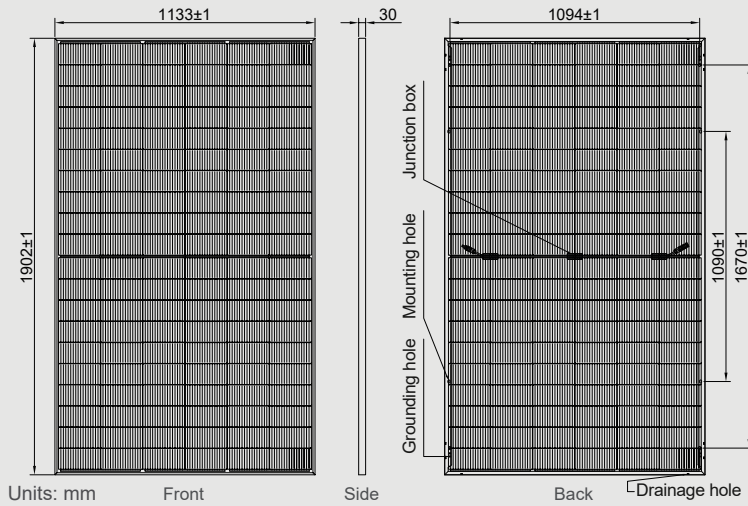
SAND  
RESISTANT



AMMONIA  
RESISTANT



HIGHLY STABLE  
AND TOUGH



### Electrical specifications (STC\*):

Parameter	Symbol	440	445	450	455	460
Nominal max. power	$P_{max}$ (Wp)	440	445	450	455	460
Maximum operating voltage	$V_{MPP}$ (V)	34.62	34.87	35.13	35.38	35.60
Maximum operating current	$I_{MPP}$ (A)	12.71	12.76	12.81	12.86	12.92
Open-circuit voltage	$V_{oc}$ (V)	41.35	41.66	41.98	42.29	42.60
Short-circuit current	$I_{sc}$ (A)	13.47	13.52	13.57	13.62	13.67
Module efficiency	$\eta$ (%)	20.42	20.65	20.88	21.11	21.35
Power tolerance	(W)	0~+5				
Maximum system voltage	(V)	1500				
Maximum series fuse rating	(A)	25				

\*STC: Standard Test Conditions (irradiance 1000 W/m², cell temperature 25°C and air mass of AM1.5), measurement tolerance  $P_{max}$ : ±3%

### Electrical specifications (NMOT\*):

Parameter	Symbol	331	335	338	342	345
Nominal max. power	$P_{max}$ (Wp)	331	335	338	342	345
Maximum operating voltage	$V_{MPP}$ (V)	32.60	32.80	33.00	33.20	33.40
Maximum operating current	$I_{MPP}$ (A)	10.17	10.21	10.25	10.29	10.34
Open-circuit voltage	$V_{oc}$ (V)	38.80	39.00	39.20	39.40	39.60
Short-circuit current	$I_{sc}$ (A)	10.78	10.82	10.86	10.90	10.94

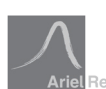
\*NMOT: Normal Module Operating Temperature (irradiance 800 W/m², ambient temperature 20°C, air mass of AM1.5 and wind speed of 1 m/s)

### Bifacial electrical specifications

Parameter	440	445	450	455	460
Max. power front-side	440	445	450	455	460
Backside Power Gain	5% 10%	5% 10%	5% 10%	5% 10%	5% 10%
Total equivalent power	462 484	467 489	473 495	478 500	483 506
Module efficiency	21.44 22.46	21.68 22.71	21.93 22.97	22.17 23.22	22.41 23.48

\*Bifacial Gain: The additional gain from the back side compared to the power of the front side at the standard test condition. It depends on the mounting (structure, height, tilt angle, etc.) and albedo of the ground.

### SYSTEM AND PRODUCT CERTIFICATIONS



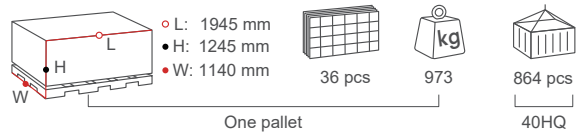
IEC 61215 IEC 61730  
Regular Production Surveillance  
www.tuv.com

IEC 62716 (Ammonia corrosion)  
IEC 61701 (Salt mist corrosion)  
IEC 60068 (Sand and dust)  
IEC 62804 (PID resistance)

### Mechanical and design specification

Cell type	Gallium-doped mono c-Si PERC, half-cut cells
No. of cells	120
Bifaciality	70 ± 5%
Front cover	2.0 mm glass, high transmission, AR coated, tempered
Encapsulation	POE
Back cover	2.0 mm, high transmission solar glass, tempered
Junction box	IP68 rated, 3 bypass diodes
Frame	30 mm anodized aluminium alloy
Cable (Including Connector)	1 x 4 mm², 350 mm length or customized
Connectors	MC 4 / MC 4 compatible
Dimension	1902 mm x 1133 mm x 30 mm
Weight	25.5 kg
Hail resistance	Max. Ø 25 mm at 23 m/s
Wind load	2400 Pa or 244 kg/m²
Snow load	5400 Pa or 550 kg/m²

### Packaging information



### Temperature ratings

Operating temperature	-40 to +85°C
Temp. coefficient of $P_{max}$	-0.35 %/°C
Temp. coefficient of $V_{oc}$	-0.275 %/°C
Temp. coefficient of $I_{sc}$	0.045 %/°C
Nom. operating cell temp. NOCT	45 ± 2°C

The specifications and characteristics contained in this datasheet may deviate slightly from our actual products due to the product developments and uncertainty of measurement devices. The specifications included in the datasheet are subject to change without prior notice.



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