

**DBB**

**DHN-54R20/DG**

**450~470W**

High Efficiency Double Glass PV Module


### Comprehensive Products & System Certificates


IEC 61215 / IEC 61730 / CE / INMETRO  
ISO 45001  
2018/International standards for occupational health & safety  
ISO 14001  
2015/Standards for environmental management system  
ISO 9001  
2015/Quality management system


 Material & technology warranty

 Linear power output warranty

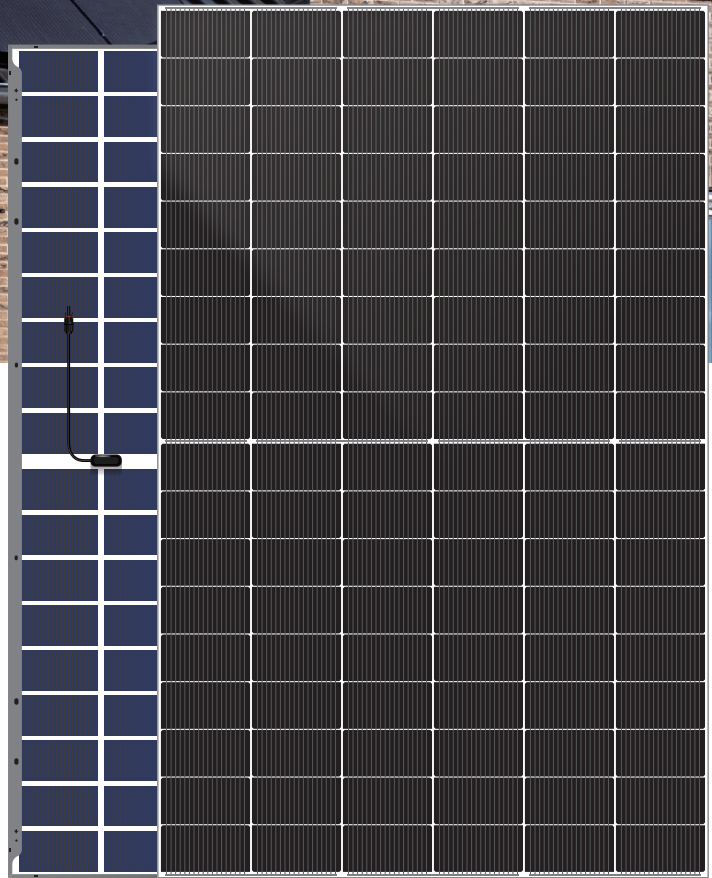
  
No-Busbar(OBB) Technology, shorten 40% of the transmission distance.  
Reduces losses & improving conversion efficiency

  
TOPCon cells double-sided rate up to 85% and  
more back power generation by 5-25%

  
Double-glass Technology, higher encapsulation  
blocking and mechanical strength

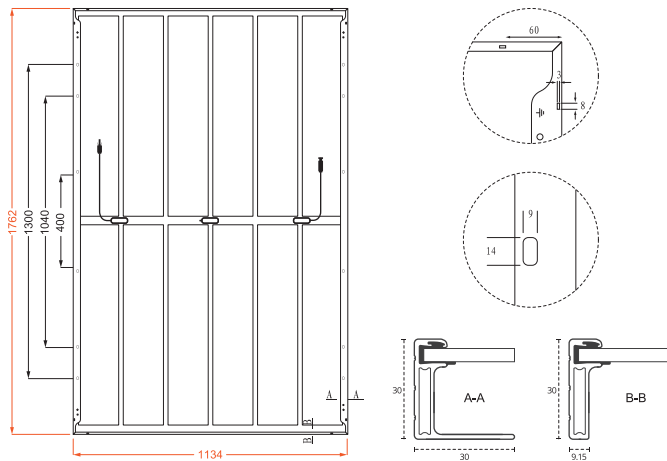
  
Higher power, longer service life, linear power warranty for 30 years

  
TOPCon cells, lower attenuation,  
better temperature coefficient & dim light performance

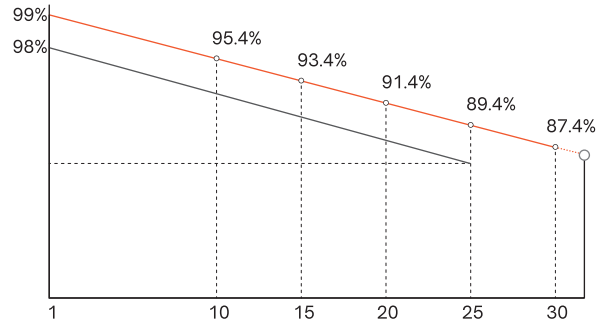


# DHN-54R20/DG 450~470W

## Design



## 30-Year Linear Power Output Warranty



— DAH Solar linear power output guarantee  
— Standard linear power output guarantee

## Mechanical Specification

No. of Cells	108 (6×18)
Weight	23.9kg
Cells Type	N-type 182×95.8mm
Dimension (L×W×T)	1762×1134×30mm
Packing	36pcs/Pallet, 936pcs/40HQ

Cable	4.0mm <sup>2</sup> , 300/200mm in length, (Including connector) length can be customized
Glass	2.0mm High Transmission, Antireflection Coating
Junction Box	IP68, 3 Bypass Diodes
Connector	MC4 Compatible

## Electrical Characteristics

Module Type	DHN-54R20/DG											
	STC		NOCT		STC		NOCT		STC		NOCT	
Test conditions	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (P <sub>max</sub> /W)	450	338	455	342	460	346	465	350	470	353	475	356
Open-circuit Voltage (V <sub>oc</sub> /V)	39.4	37.4	39.6	37.6	39.8	37.8	40.0	38.0	40.2	38.2	40.4	38.4
Maximum Power Voltage (V <sub>mp</sub> /V)	33.5	31.8	33.7	32.0	33.9	32.2	34.1	32.4	34.3	32.6	34.5	32.8
Short-circuit Current (I <sub>sc</sub> /A)	14.42	11.64	14.48	11.69	14.54	11.74	14.60	11.79	14.66	11.84	14.72	11.89
Maximum Power Current (I <sub>mp</sub> /A)	13.43	10.63	13.50	10.69	13.57	10.74	13.64	10.79	13.70	10.85	13.77	10.90
Module Efficiency (STC)	22.52%		22.77%		23.02%		23.27%		23.52%		23.77%	
Refer Bifacial Factor	80±5%											

STC-Standard Test Environment: Irradiance 1000W/m<sup>2</sup>, Cell temperature 25°C, Spectrum AM1.5

NOCT-Standard Test Environment: Irradiance 800W/m<sup>2</sup>, Ambient temperature 20°C, Spectrum AM1.5, Wind speed 1m/s

## Double-Sided Power Generation Parameters (Rear gain)

Gain	Parameter	450W	455W	460W	465W	470W
5%	Maximum Power (P <sub>max</sub> )	473	478	483	488	494
	Module Efficiency (%)	23.6	23.9	24.2	24.4	24.7
15%	Maximum Power (P <sub>max</sub> )	517.5	523.3	529.0	534.8	540.5
	Module Efficiency (%)	25.9	26.2	26.5	26.8	27.1
25%	Maximum Power (P <sub>max</sub> )	562.5	568.8	575.0	581.3	587.5
	Module Efficiency (%)	28.2	28.5	28.8	29.1	29.4

## Operating Parameters

Maximum System Voltage	1500V DC
Operating Temperature	-40 ~ +85°C
Maximum Series Fuse Rating	30A
Nominal Operating Cell Temperature	45°C±2°C
Application Level	Class A

## Temperature Coefficient

Temperature Coefficient of I <sub>sc</sub> (ΔI <sub>sc</sub> )	0.046%/°C
Temperature Coefficient of V <sub>oc</sub> (βV <sub>oc</sub> )	-0.25%/°C
Temperature Coefficient of P <sub>max</sub> (γP <sub>mp</sub> )	-0.29%/°C
Snow load, frontside / Wind load, backside	5400Pa/2400Pa