

TCL SOLAR

Solar Panel

Product: HSM-ND54-GR

Power Range: 490-515 W



Ideal for residential and commercial applications



Framed glass-glass



Bifacial energy generation

High energy yield

- Consistent energy production across all weather conditions
- Bifacial energy generation

Elegant design

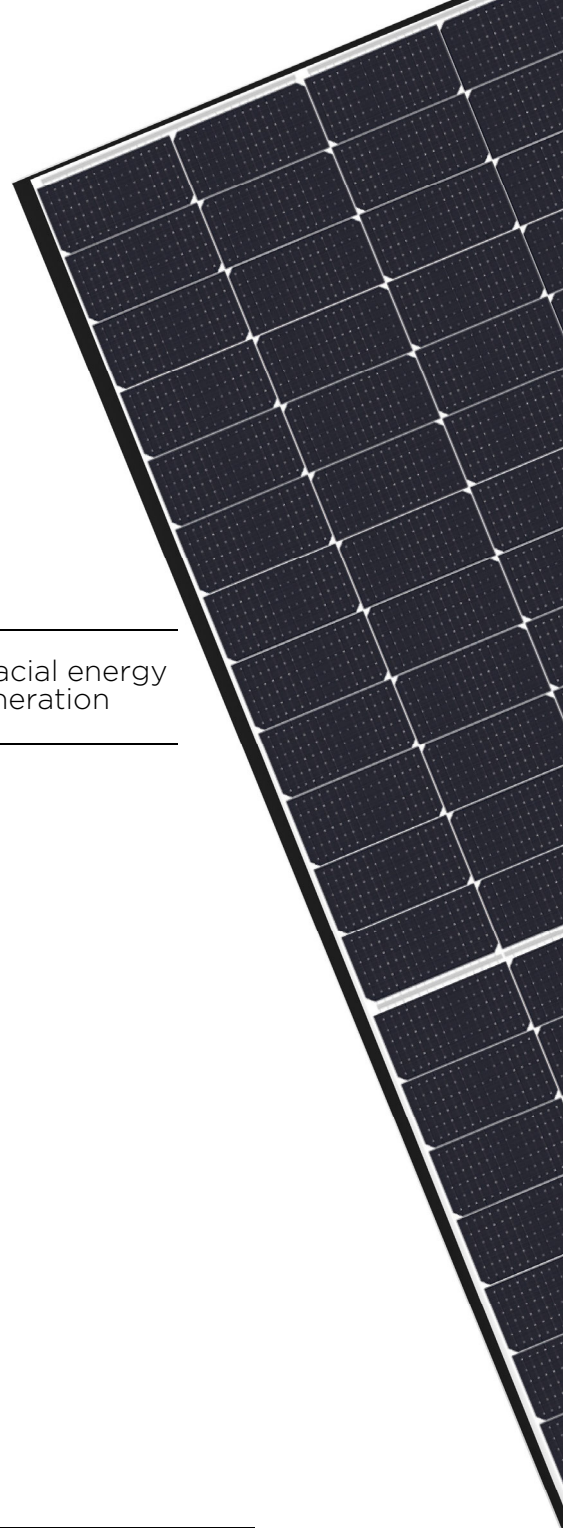
- Sleek panel aesthetic
- High-durability frame and heat-strengthened glass

Reliable operation

- Rigorous supply chain qualification procedures
- Easy to install
- Backed by a bankable company

Comprehensive warranty coverage

Product and power coverage	15/30 Years
Year 1 minimum warranted output	99.0%
Maximum annual degradation	0.40%



Electrical Data, Front STC Characteristics ¹						
	HSM-ND54-GR515	HSM-ND54-GR510	HSM-ND54-GR505	HSM-ND54-GR500	HSM-ND54-GR495	HSM-ND54-GR490
Nominal Power (P _{nom}) ²	515 W	510 W	505 W	500 W	495 W	490 W
Power Binning	3/0%	3/0%	3/0%	3/0%	3/0%	3/0%
Panel Efficiency	23.2%	22.9%	22.7%	22.5%	22.3%	22.0%
Rated Voltage (V _{mpp})	34.30 V	34.10 V	33.90 V	33.70 V	33.50 V	33.30 V
Rated Current (I _{mpp})	15.03 A	14.96 A	14.90 A	14.84 A	14.78 A	14.72 A
Open-Circuit Voltage (V _{oc}) ²	40.58 V	40.36 V	40.14 V	39.92 V	39.70 V	39.50 V
Short-Circuit Current (I _{sc}) ²	16.02 A	15.95 A	15.88 A	15.81 A	15.74 A	15.67 A

BNPI Data ³						
Nominal Power (P _{max}) ²	567 W	561 W	556 W	550 W	545 W	539 W
Open-Circuit Voltage (V _{oc}) ²	40.57 V	40.35 V	40.15 V	39.90 V	39.70 V	39.49 V
Short-Circuit Current (I _{sc}) ²	17.63 A	17.55 A	17.48 A	17.40 A	17.33 A	17.24 A

Bifacial Gain ⁴						
P _{max} with 5% Bifacial Gain	541 W	536 W	530 W	525 W	520 W	515 W
I _{sc} with 5% Bifacial Gain	16.82 A	16.75 A	16.67 A	16.60 A	16.53 A	16.45 A
P _{max} with 10% Bifacial Gain	567 W	561 W	556 W	550 W	545 W	539 W
I _{sc} with 10% Bifacial Gain	17.62 A	17.55 A	17.47 A	17.39 A	17.31 A	17.24 A

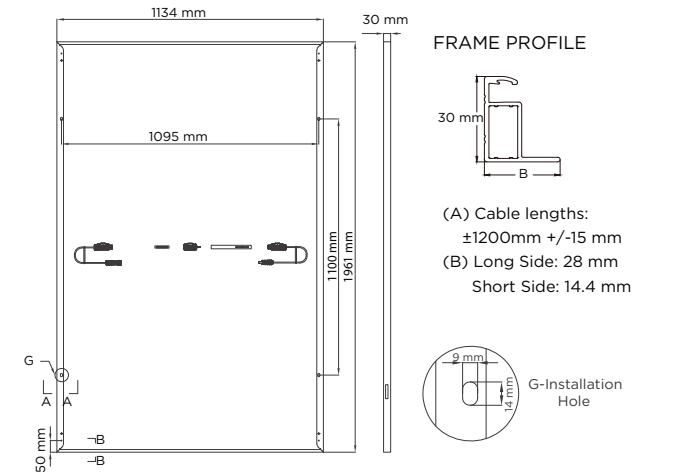
Electrical Data	
Bifaciality (ϕP _{max})	80% +/-5%
Maximum System Voltage	1500 V IEC
Testing Temperature	-40°C to +85°C
Maximum Series Fuse	30 A
Power Temp. Coef.	-0.29% / °C
Voltage Temp. Coef.	-0.25% / °C
Current Temp. Coef.	0.045% / °C

Packaging Configuration	
Number of modules per pallet	36
Number of pallets per 40ft HQ container	24
Number of modules per container	864

Tests And Certifications (Pending)	
Standard Tests	IEC 61215, IEC 61730
Fire Rating	Class A (IEC 61730-2 / UL 790)
Protection Class	Class II (IEC 61140)
Quality Certs	ISO 9001:2015, ISO 14001:2015
EHS Compliance	ISO 45001:2018, Recycling Scheme



Mechanical Data	
Solar Cells	N-Type TOPCon
Glass	2.0 mm + 2.0 mm, high transmission heat strengthened glass, AR coating on front glass
Junction Box	IP-68, 3 bypass diodes
Connector	Stäubli MC4-EVO2
Weight	27 kg
Max. Load ⁵	Wind: 2400 Pa, 245 kg/m ² front & back Snow: 5400 Pa, 550 kg/m ² front
Impact Resistance	25 mm diameter hail at 27 m/s
Frame	Black Anodized Aluminum Alloy



1 Standard Test Conditions (1000 W/m² irradiance, AM 1.5, 25° C). NREL calibration Standard: SOMS current, LACCS FF and Voltage.
2 Measurements tolerance +/-3%.
3 BNPI Test Condition (front 1000 W/m², rear 135W/m2 irradiance, AM 1.5, 25° C).
4 The additional gain from the back side of the panel compared to the power of the front side of the panel at the standard test conditions. It depends on mounting (structure, height, tilt angle etc.) and albedo of the underlying surface.
5 Test load as per IEC 61215-2 is equal to design load with safety factor = 1.5. See "Safety and Installation Instructions" for details.