

T5 Pro S Black

Solar panel - HSM-NT48-HH

450-475 W | Up to 23.8 % efficiency



More energy from your system

High efficiency N Type cells generate more power from the same space-maximizing savings without expanding your system

Consistent power, all day long

Smart design helps maintain energy production even with shade or in low light conditions

Built to protect your investment

Durable glass glass construction combined with proprietary multi-cut shingled technology enables low degradation to keep your system producing for decades

Comprehensive warranty coverage

25-year Product warranty
30-year Linear Power coverage
99.0 % minimum warranted output at Year 1
Maximum annual degradation 0.35 %



Comprehensive Products and System Certificates



IEC 61215 / IEC 61730 ISO 9001:2015 ISO 45001:2018 ISO 14001:2015

Learn more about TCL Solar panels
www.tclsolar.com/resources

Electrical Parameters (STC*)

* STC: Irradiance 1000W/m², Cell Temperature 25°C, AM1.5, Measuring Tolerance: ±3 %

Maximum Power	P _{max} (W)	450	455	460	465	470	475
Open Circuit Voltage	V _{oc} (V)	52.99	53.39	53.79	54.19	54.59	54.89
Short Circuit Current	I _{sc} (A)	10.74	10.78	10.82	10.87	10.91	10.95
Maximum Power Voltage	V _{mp} (V)	44.50	44.90	45.30	45.70	46.10	46.40
Maximum Power Current	I _{mp} (A)	10.12	10.14	10.16	10.18	10.20	10.24
Module Efficiency	(%)	22.5	22.8	23.0	23.3	23.5	23.8

Temperature Coefficient

Nominal Module Operating Temperature*	43±2 °C
Temperature Coefficient of I _{sc}	+0.046 %/°C
Temperature Coefficient of V _{oc}	-0.24 %/°C
Temperature Coefficient of P _{max}	-0.26 %/°C

Operating Parameters

Operating Temperature	-40~+70 °C
Maximum System Voltage	1500 V DC
Maximum Series Fuse Rating	25 A
Safety Protection	Class II
Fire Rating	Class C

Mechanical Data

* Please refer to installation manual for details

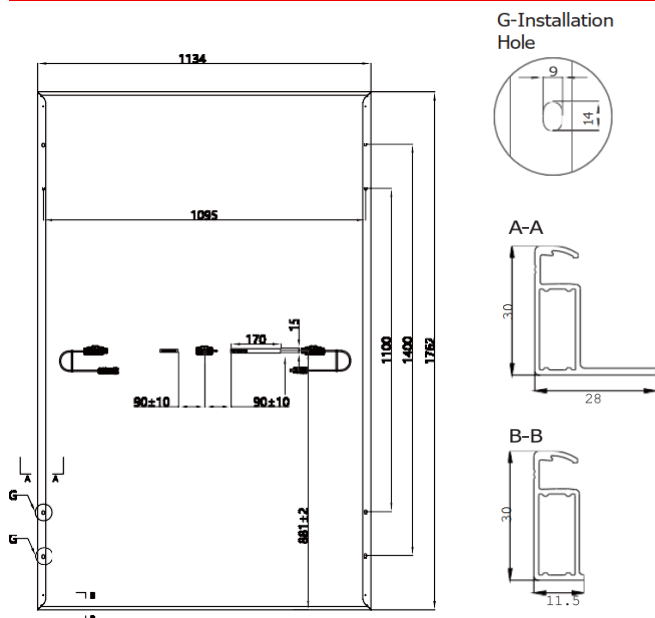
No. of Cells	144 pcs (6×24)
Dimension	1762×1134×30 mm
Weight	24.5 kg ±3 %
Front Glass	2.0 mm, Heat Strengthened, AR coating Glass
Back Glass	2.0 mm, Heat Strengthened Glass
Frame	Black Anodized Aluminium Alloy
J-Box / Diodes	IP68 / three diodes
Cables / Connector	4.0 mm ² / ±1200 mm / EVO2A
Maximum Static Load	Front: 5400 Pa / Back: 2400 Pa*

Packaging Configuration

Modules per Pallet	36 pcs
Modules per 40'HQ Container	936 pcs

Engineering Drawing

[Unit: mm]



Please read the safety and installation instructions.
Visit www.tclsolar.com/resources
Paper version can be requested through
techsupport.EN@sunpowerglobal.com

Publication: April 2026