

# 505 W

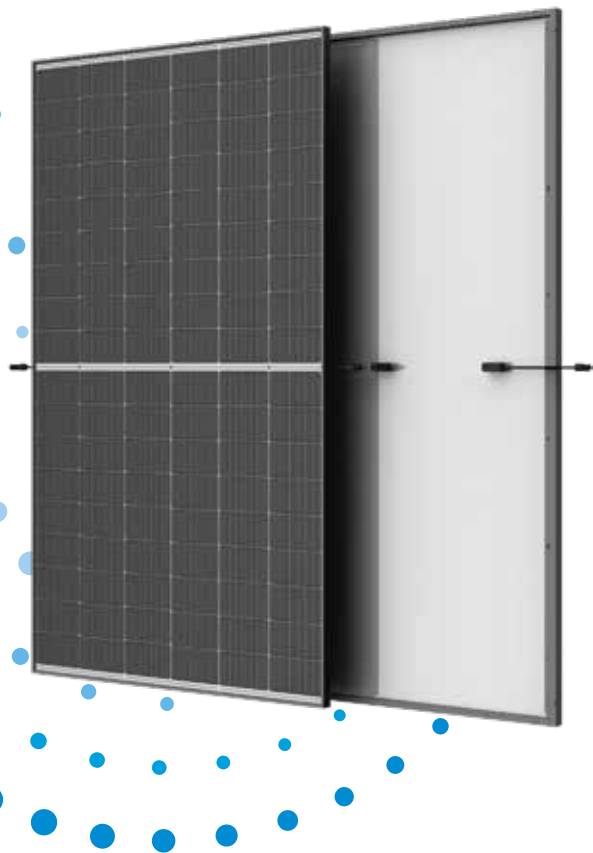
MAXIMUM POWER OUTPUT

# 0/+5 W

POSITIVE POWER TOLERANCE

# 22.7 %

MAXIMUM EFFICIENCY



### Optimal Size for Commercial & Industrial Rooftops

- Compact module design with medium size for lower total system cost and shorter payback time
- Low voltage design for high string power



### Lightweight Dual-glass Design, High Reliability

- Excellent fire resistance; durability in harsh environmental conditions and high temperature or high humidity areas
- Up to 5,400 Pa snow load and 2,400 Pa wind load (test loads)
- 25 years product warranty



### Maximized Energy Harvest

- High module power: Up to 505 W, 22.7 % module efficiency with n type i-TOPCon technology
- Maximum 1 % first-year degradation and 0.4 % annual degradation
- 30 years power warranty



### Universal Solution for Rooftop Systems

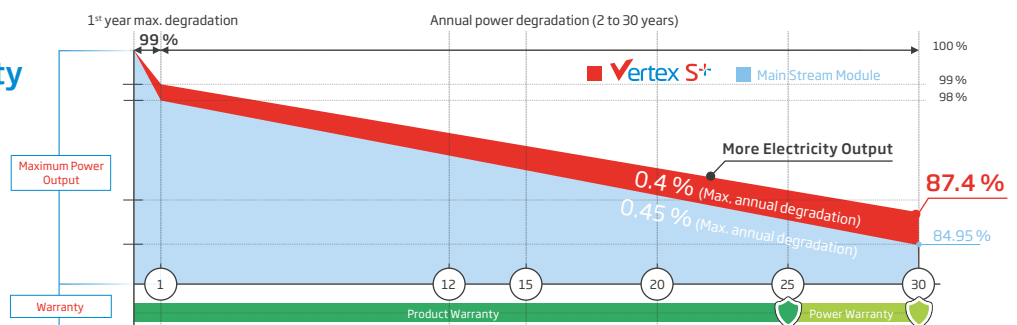
- Designed for compatibility with existing mainstream inverters, optimizers and mounting systems
- Easy to handle (length below 2 meters) and install on roofs with excellent size and light weight
- Flexible installation solutions for system deployment

## Extended Vertex S+ Warranty

**1 %**  
1<sup>st</sup> year max. degradation

**0.4 %**  
Max. annual degradation from year 2 to 30

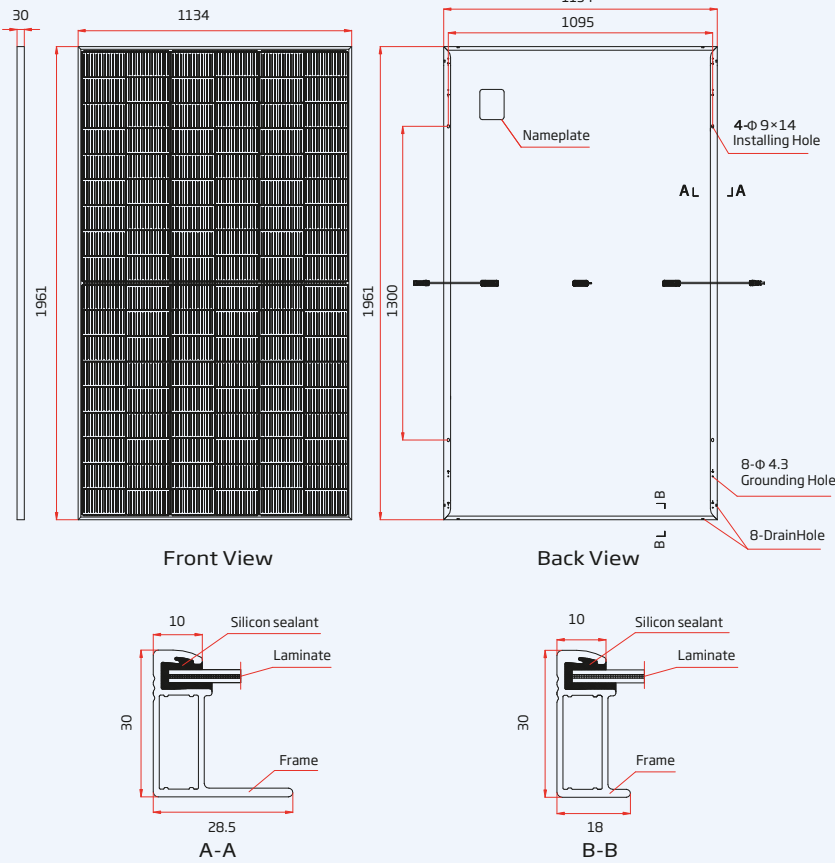
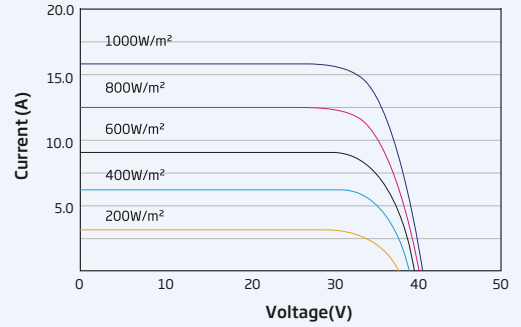
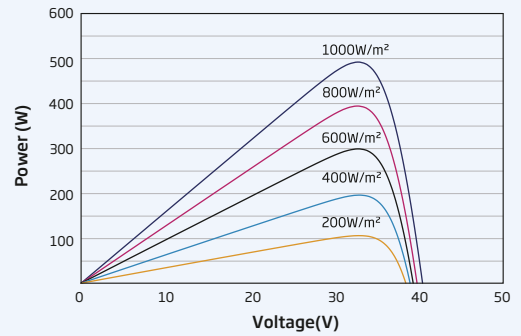
**25 Years**  
Product Workmanship Warranty



## Comprehensive Products and System Certificates



IEC61215/IEC61730/IEC61701/IEC62716  
 ISO 9001: Quality Management System  
 ISO 14001: Environmental Management System  
 ISO14064: Greenhouse Gases Emissions Verification  
 ISO45001: Occupational Health and Safety Management System

**DIMENSIONS OF PV MODULE(mm)**

**I-V CURVES OF PV MODULE (490 W)**

**P-V CURVES OF PV MODULE (490 W)**

**ELECTRICAL DATA (STC)**
**TSM-475 TSM-480 TSM-485 TSM-490 TSM-495 TSM-500 TSM-505**  
NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28

|                                      |       |       |       |       |       |       |       |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Peak Power Watts- $P_{MAX}$ (Wp)*    | 475   | 480   | 485   | 490   | 495   | 500   | 505   |
| Power Tolerance- $P_{MAX}$ (W)       | 0/+5  |       |       |       |       |       |       |
| Maximum Power Voltage- $V_{MPP}$ (V) | 32.3  | 32.5  | 32.7  | 32.9  | 33.1  | 33.3  | 33.5  |
| Maximum Power Current- $I_{MPP}$ (A) | 14.72 | 14.77 | 14.84 | 14.91 | 14.97 | 15.03 | 15.09 |
| Open Circuit Voltage- $V_{OC}$ (V)   | 39.0  | 39.2  | 39.4  | 39.6  | 39.8  | 40.1  | 40.3  |
| Short Circuit Current- $I_{SC}$ (A)  | 15.68 | 15.72 | 15.76 | 15.80 | 15.83 | 15.86 | 15.89 |
| Module Efficiency $\eta_m$ (%)       | 21.4  | 21.6  | 21.8  | 22.0  | 22.3  | 22.5  | 22.7  |

 STC: Irradiance 1000 W/m<sup>2</sup>, Cell Temperature 25 °C, Air Mass AM 1.5. \*Measuring tolerance: ±3%.

**ELECTRICAL DATA (NOCT)**
**TSM-475 TSM-480 TSM-485 TSM-490 TSM-495 TSM-500 TSM-505**  
NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28

|                                      |       |       |       |       |       |       |       |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Maximum Power- $P_{MAX}$ (Wp)        | 363   | 367   | 371   | 375   | 378   | 382   | 386   |
| Maximum Power Voltage- $V_{MPP}$ (V) | 30.4  | 30.6  | 30.8  | 31.0  | 31.3  | 31.5  | 31.8  |
| Maximum Power Current- $I_{MPP}$ (A) | 11.94 | 11.98 | 12.02 | 12.06 | 12.08 | 12.11 | 12.15 |
| Open Circuit Voltage- $V_{OC}$ (V)   | 36.9  | 37.2  | 37.4  | 37.6  | 37.7  | 38.0  | 38.3  |
| Short Circuit Current- $I_{SC}$ (A)  | 12.64 | 12.67 | 12.70 | 12.74 | 12.76 | 12.78 | 12.81 |

 NOCT: Irradiance at 800 W/m<sup>2</sup>, Ambient Temperature 20 °C, Wind Speed 1 m/s.

**MECHANICAL DATA**

|                      |   |
|----------------------|---|
| Solar Cells          | Monocrystalline   |
| No. of cells         | 108 cells   |
| Module Dimensions    | 1961×1134×30 mm   |
| Weight               | 23.5 kg   |
| Front Glass          | 1.6 mm, High Transmission, AR Coated Heat Strengthened Glass  |
| Encapsulant material | POE/EVA   |
| Back Glass           | 1.6 mm, Heat Strengthened Glass   |
| Frame                | 30 mm Anodized Aluminium Alloy, Black   |
| J-Box                | IP 68 rated   |
| Cables               | Photovoltaic Technology Cable 4.0 mm <sup>2</sup><br>Landscape: 1300/1300 mm<br>Portrait: 280/350 mm* |
| Connector            | TS4 / MC4 EVO2*   |

\*Special order only.

**TEMPERATURE RATINGS**

|   |             |
|---|-------------|
| NOCT (Nominal Operating Cell Temperature) | 43°C (±2°C) |
| Temperature Coefficient of $P_{MAX}$      | -0.29%/°C   |
| Temperature Coefficient of $V_{OC}$       | -0.24%/°C   |
| Temperature Coefficient of $I_{SC}$       | 0.04%/°C    |

**MAXIMUM RATINGS**

|                         |                 |
|-------------------------|-----------------|
| Operational Temperature | -40 to +85 °C   |
| Maximum System Voltage  | 1500 V DC (IEC) |
| Max Series Fuse Rating  | 30 A            |

**WARRANTY**

 25 year Product Workmanship Warranty  
 30 year Power Warranty  
 1% first year degradation  
 0.4% Annual Power Attenuation  
 (Please refer to product warranty for details)

**PACKAGING CONFIGURATION**

|                            |            |
|----------------------------|------------|
| Modules per box:           | 36 pieces  |
| Modules per 40' container: | 864 pieces |