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Date: 27/12/2021 20:09:24

COMUNE DI AVETRANA

PROVINCIA DI TARANTO

REGIONE PUGLIA

REALIZZAZIONE DI UN IMPIANTO SOLARE FOTOVOLTAICO CONNESSO ALLA RETE DELLA POTENZA DI PICCO PARI A 36.288,00 kW DA REALIZZARE SU AREA "EX CAVA"

Denominazione Impianto:

IMPIANTO AVETRANA CAVE

Ubicazione:

Comune di Avetrana (TA)
Località Masseria Canaglie

ELABORATO
020900_IMP_R

Cod. Doc.: AVC20_020900_IMP_R

COMPONENTI PRINCIPALI – DATA SHEET

COMET ENERGY POWER

Project - Commissioning – Consulting
Municipiul Bucaresti Sector 1
Str. HRISOVULUI Nr. 2-4, Parter, Camera 1, Bl. 2, Ap. 88
RO41889165

Scala: --

PROGETTO

Data: **15/12/2021**

PRELIMINARE	DEFINITIVO	AS BUILT
☐	☒	☐

Richiedente:

AVETRANA S.r.l.
Piazza Walther Von Vogelweide, 8
39100 Bolzano
Provincia di Bolzano
P.IVA 03027960214

Tecnici e Professionisti:

Ing. Luca Ferracuti Pompa:
Iscritto al n.A344 dell'Albo degli Ingegneri della Provincia di Fermo

Revisione	*Data*	*Descrizione*	*Redatto*	*Approvato*	*Autorizzato*
01	*15/12/2021*	*Progetto Definitivo*	*F.P.L.*	*F.P.L.*	*F.P.L.*
02					
03					
04					

Il Tecnico:
Dott. Ing. Luca Ferracuti Pompa
(Iscritto al n. A344, dell'Albo dell'Ordine degli Ingegneri della Provincia di Fermo)

ORDINE degli INGEGNERI - PROVINCIA di FERMO
Luca FERRACUTI POMPA
Ingegnere
a - civile ambientale
b - industriale
c - dell'informazione
A344

.....

Il Richiedente:
AVETRANA S.r.l.
Piazza Walther Von Vogelweide n.8 – 39100 Bolzano (BZ)
P.iva: 03027960214

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1. OGGETTO

Il presente documento è redatto quale allegato alla documentazione relativa all'istanza per il procedimento di Valutazione di Impatto Ambientale ministeriale, ai sensi degli Artt. **23** e **24** del **D. Lgs. 152/06**, per la realizzazione in conformità alle vigenti disposizioni di legge di un impianto fotovoltaico di potenza di picco pari a **36.288,00 kW** e potenza in immissione pari a **41.500,00 kW** (di cui la Sezione di Impianto è di **31.300,00kW**) nel Comune di **Avetrana (TA)** in località **"Masseria Canaglie"**.

L'impianto sarà del tipo Grid Connected e l'energia elettrica prodotta sarà riversata completamente in rete, con allaccio in **Alta Tensione** a **150 kV** alla Rete di **E-Distribuzione**, mediante realizzazione di una **nuova Stazione di Elevazione Utenza (S.E.U.) per la connessione alla Cabina Primaria (C.P.) denominata "Ruggianello**".

Il Produttore e Soggetto Responsabile, è la Società **AVETRANA s.r.l.** la quale dispone dell'autorizzazione all'utilizzo dell'area su cui sorgerà l'impianto in oggetto. La denominazione dell'impianto è **"AVETRANA CAVE**

Allegati:

- DATA SHEET MODULI FOTOVOLTAICI;
- DATA SHEET INVERTER;
- DATA SHEET TRACKER MONOASSIALI;

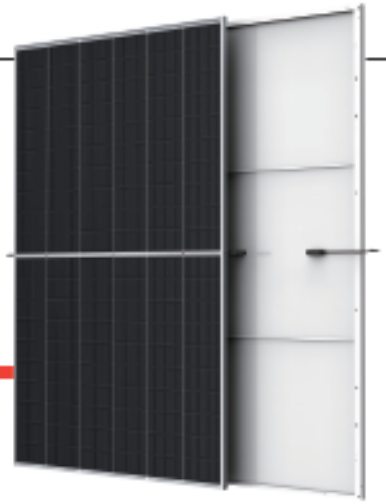
Porto San Giorgio li 15.12.2021

In Fede

Il Tecnico
(Dott. Ing. Luca Ferracuti Pompa)

Mono Multi Solutions

Preliminary



THE

Vertex

BACKSHEET MONOCRYSTALLINE MODULE

605W
MAXIMUM POWER OUTPUT

21.4%
MAXIMUM EFFICIENCY

0~+5W
POSITIVE POWER TOLERANCE

PRODUCTS
TSM-DE20

POWER RANGE
585-605W

Founded in 1997, Trina Solar is the world's leading total solution provider for solar energy. With local presence around the globe, Trina Solar is able to provide exceptional service to each customer in each market and deliver our innovative, reliable product with the backing of Trina as a strong, bankable brand. Trina Solar now distributes its PV products to over 100 countries all over the world. We are committed to building strategic, mutually beneficial collaborations with installers, developers, distributors and other partners in driving smart energy together.

Comprehensive Products and System Certificates

IEC61215/IEC61730/IEC61701/IEC62716
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO 14064: Greenhouse Gases Emissions Verification
ISO 45001: Occupational Health and Safety Management System

Trinasolar

High customer value

- Lower LCOE (Levelized Cost Of Energy), reduced BOS (Balance of System) cost, shorter payback time
- Lowest guaranteed first year and annual degradation;
- Designed for compatibility with existing mainstream system components
- Higher return on investment

High power up to 605W

- Up to 21.4% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect, lower series resistance and improved current collection

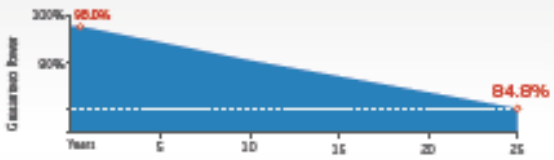
High reliability

- Minimized micro-cracks with innovative non-destructive cutting technology
- Ensured PID resistance through cell process and module material control
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load

High energy yield

- Excellent IAM (Incident Angle Modifier) and low irradiation performance, validated by 3rd party certifications
- The unique design provides optimized energy production under inter-row shading conditions
- Lower temperature coefficient (-0.34%) and operating temperature

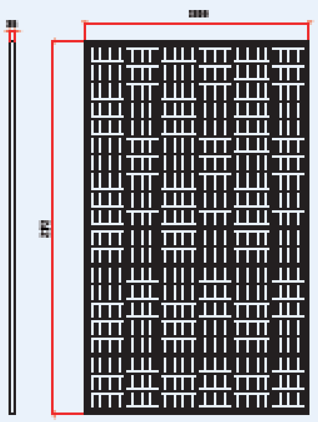
Trina Solar's Vertex Backsheet Performance Warranty



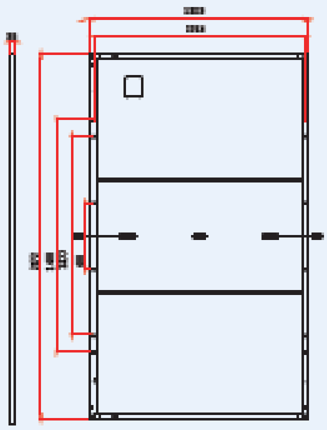
Vertex

BACKSHEET MONOCRYSTALLINE MODULE

DIMENSIONS OF PV MODULE(mm)

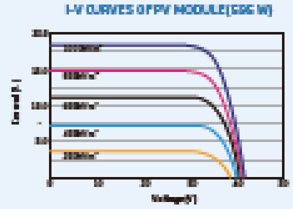


Front view

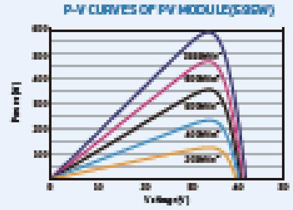


Back view

I-V CURVES OF PV MODULE(595 W)



P-V CURVES OF PV MODULE(595W)



ELECTRICAL DATA (STC)

Peak Power Watts-P_{MAX} (Wp)*	585	590	595	600	605
Power Tolerance-P_{MAX} (W)	0 ~ +5				
Maximum Power Voltage-V_{MPP} (V)	33.8	34.0	34.2	34.4	34.6
Maximum Power Current-I_{MPP} (A)	17.21	17.35	17.40	17.44	17.49
Open Circuit Voltage-V_{OC} (V)	40.9	41.1	41.3	41.5	41.7
Short Circuit Current-I_{SC} (A)	18.37	18.42	18.47	18.52	18.57
Module Efficiency η_m (%)	20.7	20.8	21.0	21.2	21.4

[illegible]

ELECTRICAL DATA (NOCT)

Maximum Power-P_{MAX} (Wp)	443	447	451	454	458
Maximum Power Voltage-V_{MPP} (V)	31.5	31.7	31.9	32.0	32.2
Maximum Power Current-I_{MPP} (A)	14.05	14.09	14.13	14.18	14.22
Open Circuit Voltage-V_{OC} (V)	38.5	38.7	38.9	39.1	39.3
Short Circuit Current-I_{SC} (A)	14.81	14.85	14.88	14.92	14.96

[illegible]

MECHANICAL DATA

Solar Cells	Monocrystalline
No. of cells	120 cells
Module Dimensions	2172×1303×35 mm (85.51×51.30×1.38 inches)
Weight	30.9 kg (68.1 lb)
Glass	3.2 mm (0.13 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	EVA
Backsheet	White
Frame	35mm(1.38 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm² (0.006 inches²), Portrait: 280/280 mm(11.02/11.02 inches) Landscape: 1400/1400 mm(55.12/55.12 inches)
Connector	MC4 EVO2/ TS4*

[illegible]

TEMPERATURE RATINGS

NOCT(Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of P_{MAX}	- 0.34%/°C
Temperature Coefficient of V_{OC}	- 0.25%/°C
Temperature Coefficient of I_{SC}	0.04%/°C

[illegible]

MAXIMUM RATINGS

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

WARRANTY

12 year Product Workmanship Warranty
25 year Power Warranty
2% first year degradation
0.55% Annual Power Attenuation

[illegible]

PACKAGING CONFIGURATION

Modules per 40' container: 512 pieces

Trinasolar

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.

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Version number: TSM_EN_2020_PA1 www.trinasolar.com

SUN2000-185KTL-H1
Smart String Inverter

HUAWEI

SUN2000-185KTL-H1

Technical Specifications

Efficiency	
Max. Efficiency	99.03%
European Efficiency	98.69%
Input	
Max. Input Voltage	1,500 V
Max. Current per MPPT	26 A
Max. Short Circuit Current per MPPT	40 A
Start Voltage	550 V
MPPT Operating Voltage Range	500 V ~ 1,500 V
Nominal Input Voltage	1,080 V
Number of Inputs	18
Number of MPP Trackers	9
Output	
Nominal AC Active Power	175,000 W @40°C, 168,000 W @45°C, 150,000 W @50°C
Max. AC Apparent Power	185,000 VA
Max. AC Active Power (cosϕ=1)	185,000 W
Nominal Output Voltage	800 V, 3W + PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Nominal Output Current	126.3 A @40°C, 121.3 A @45°C, 108.3 A @50°C
Max. Output Current	134.9 A
Adjustable Power Factor Range	0.8 LG ... 0.8 LD
Max. Total Harmonic Distortion	< 3%
Protection	
Input-side Disconnection Device	Yes
Anti-islanding Protection	Yes
AC Overcurrent Protection	Yes
DC Reverse-polarity Protection	Yes
PV-array String Fault Monitoring	Yes
DC Surge Arrester	Type II
AC Surge Arrester	Type II
DC Insulation Resistance Detection	Yes
Residual Current Monitoring Unit	Yes
Communication	
Display	LED Indicators, Bluetooth/WLAN + APP
USB	Yes
MBUS	Yes
RS485	Yes
General	
Dimensions (W x H x D)	1,035 x 700 x 365 mm (40.7 x 27.6 x 14.4 inch)
Weight (with mounting plate)	84 kg (185.2 lb.)
Operating Temperature Range	-25°C ~ 60°C (-13°F ~ 140°F)
Cooling Method	Smart Air Cooling
Max. Operating Altitude without Derating	4,000 m (13,123 ft.)
Relative Humidity	0 ~ 100%
DC Connector	Staubli MC4 EVO2
AC Connector	Waterproof Connector + OT/DT Terminal
Protection Degree	IP66
Topology	Transformerless
Standard Compliance (more available upon request)	
Certificate	EN 62109-1/-2, IEC 62109-1/-2, EN 50530, IEC 62116, IEC 60068, IEC 61683
Grid Code	IEC 61727, P.O. 12.3, RD 1699, RD 661, RD 413, RD 1565, RD 1663, UNE 206007-1, UNE 206006

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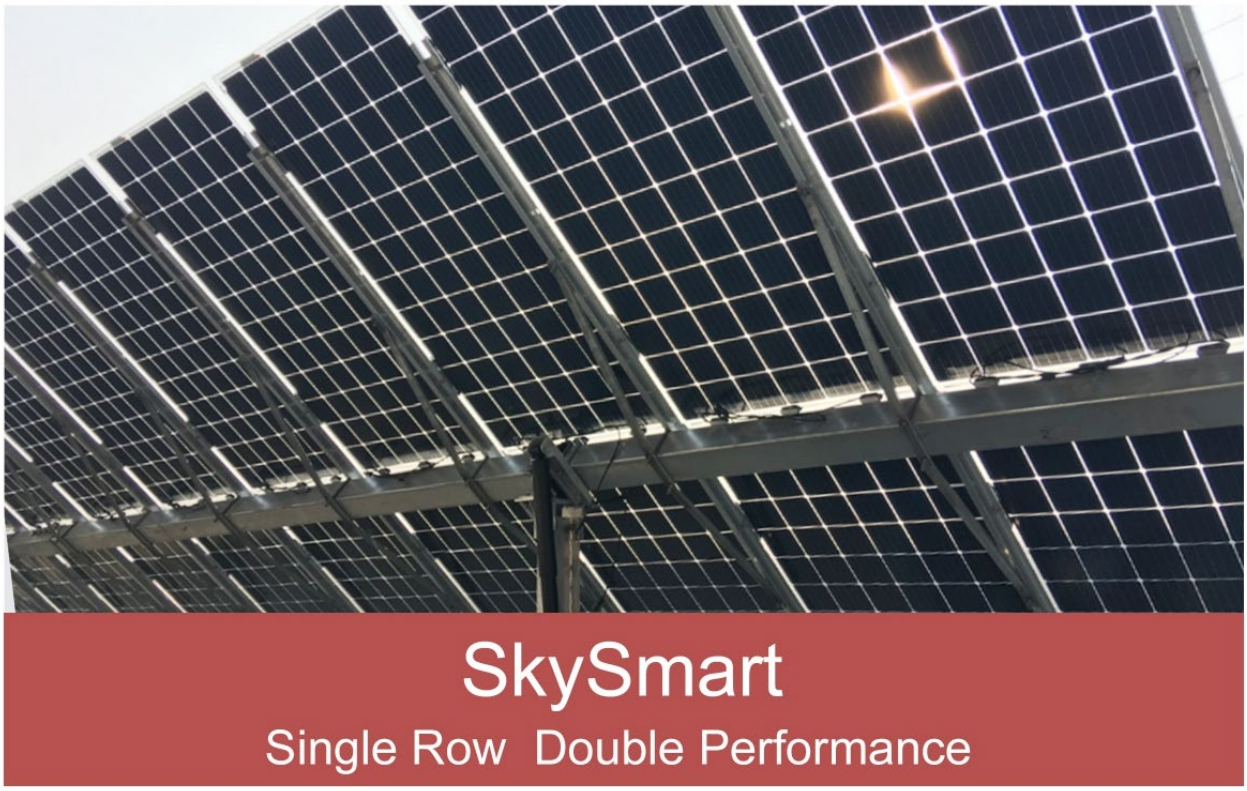
Arctech Solar



Tracking type:	Independent single axis horizontal tracker; Any tracker alignment possible (ideally along North-South direction); Individual 3D backtracking
Tracking algorithm :	Accurate astronomical formulas; tracking precision = 0.5°
Rotation range:	±55°
Ground cover ratio:	Freely configurable by customer (between 34% and 50%)
PV Module compatibility:	Framed modules; All major brands
Module mount:	1 module portrait; 2 modules landscape
Drive system:	1 Independent linear actuator per tracker
Peak power per tracker:	Up to 32.64 kWp per tracker (with 340Wp modules)
N° of Module per tracker:	Up to 100 72-cell modules (1000 V) or 90 72-cell modules (1500 V)
PV array voltage:	1000 V or 1500 V
Power supply:	400 V AC (50/60 Hz) / Self powered
Communication:	Private wired network / wireless with star topology
Monitoring:	Local control via SCADA; Remote control available
Power consumption:	≈ 600 kWh/MWp/year (@ reference temperature of 20°C)
Foundation type:	standard: driven pile; compatible also with: cement block; ground screw
Wind resistance (Eurocodes):	In operation: up to 80 km/h in any position, depending on tracker version; Stow position: up to 200+ km/h in stow position, depending on tracker version.
Snow resistance:	Up to 1'500 N/m2; depending on tracker version
Tracker stowing time:	≤ 3 min
Installation tolerances:	North South: ±45 mm; East-West: ±25 mm; Height tolerance: ±40 mm; Tilt: 8°; Twist: 15°
Ground slope:	Max 15% slope in longitudinal direction (North- South); Any slope in transversal direction (East-West) [max 70% local slope for rotation clearance]
Installation method:	Engineered for fast and easy assembly; no welding nor drilling required on site
Materials:	HDG construction steel; Maintenance free drive components (actuator and bearings)
Certifications/Compliance:	CE 2006/42/UE; Eurocodes EN1991-1-1/3/4; LV 2014/35/UE; EMC 2014/30/UE ; ISO 9001-2015
Warranty :	Structure: 10 years; Drive and electronics: 5 years; Warranty extension available