

## NO MORE CONCRETE

By utilizing locally sourced quarry rock, simply drop the weight in and you're done. No more waiting on concrete trucks, renting concrete pumps, or washing out trucks onsite. No more labor hours for setting up temporary concrete molds. No more waiting 24 hours for concrete to cure. The flow and speed of your job is 100% in your control.

## RAPID SETUP

The galvanized steel wire box is delivered to the site over 70% pre-assembled. Simply unfold the box, install the spiral wires and connect the anchor tubes. The Geoballast foundation is then fully assembled and can be moved to the proper position in the row and filled with quarry rock. It's easy to assemble, stage, and stringline.

## GEOBALLAST FOUNDATION

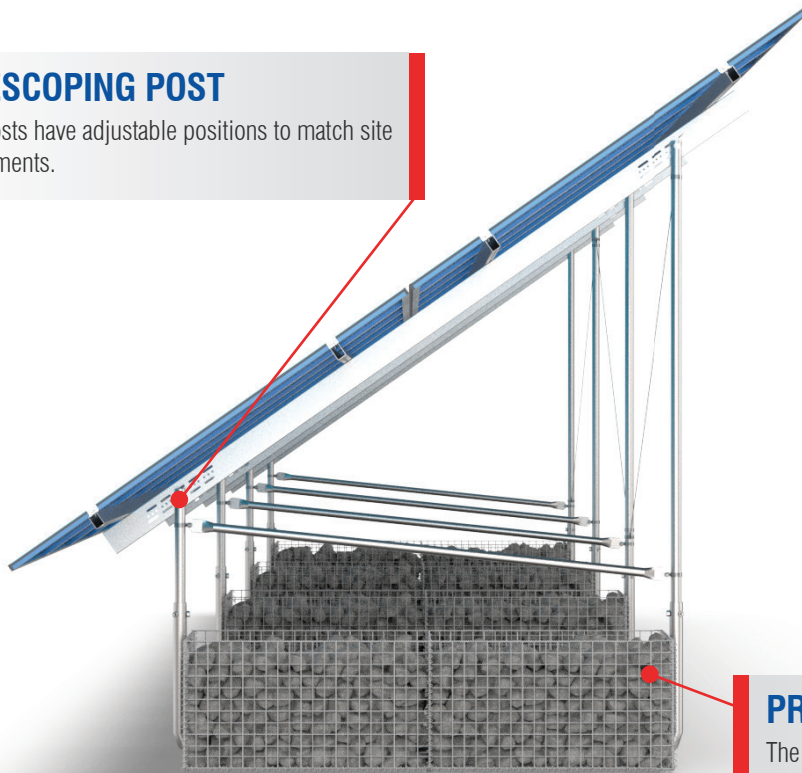
The **Geoballast Foundation** was developed after years of installing ballasted solar projects. Concrete, whether pre-cast or pour in place, proved to be an expensive and time-consuming method. Our innovative engineering and R&D teams developed a revolutionary process for ballasted projects. The goal was to remove all concrete and take the idea of a standard gabion basket and engineer it to excel as a ballast solution. Our highly engineered Geoballast box has the fastest installation time available, and is one of the most cost effective products on the market.

*In business since 2008, APA offers a versatile line of racking and foundation solutions for projects in even the most challenging environments. With projects nationwide, APA is a trusted racking partner.*

# WHY USE A GEOBALLAST FOUNDATION?

## TELESCOPING POST

Both posts have adjustable positions to match site requirements.



## STANDARD SPECIFICATIONS

**Engineering:** APA Drawings can be PE stamped for all 50 States and territories

**Tilt Angles:** 5°-35° Tilt Options

**Wind Loading:** Up to 130mph

**Snow Loading:** Up to 100psf

**Mounting Orientation:** 2-High in Portrait

**Weight Requirement:** 2,250 lbs per basket

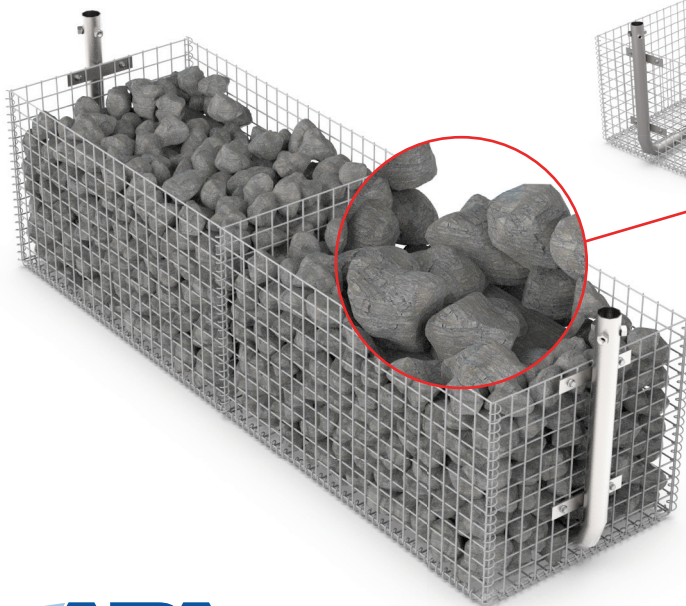
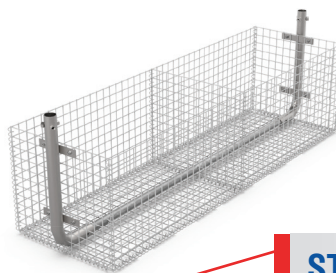
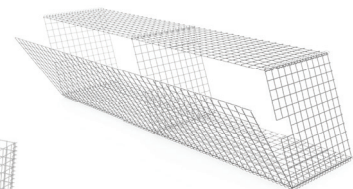
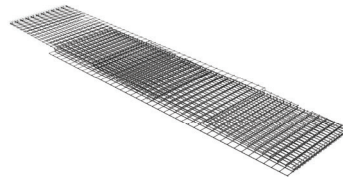
**Foundation Coating:** Galvanized with PVC coating for added protection

## PRE-ASSEMBLED BASKET

The ballast is shipped 70% assembled, which allows for lower labor cost and quick deployment.

## SIMPLE SETUP PROCESS

- Place folded ballast basket on the ground
- Unfold basket and insert lower tube
- Install spiral retainers and u-bolt connections
- Place in desired location and fill with quarry rock



## STANDARD QUARRY ROCK

Rock can be sourced from local quarries to reduce shipping costs.

## 275kW/275kVA, 1500Vdc String Inverters for North America



### CPS SCH275KTL-DO/US-800

The 275kW high power CPS three phase string inverters are designed for ground mount applications. The units are high performance, advanced and reliable inverters designed specifically for the North American environment and grid. High efficiencies, wide operating voltages, broad temperature ranges and NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The SCH275KTL inverters include 12 MPPTs and are available with either 36 fused PV string inputs or 24 unfused PV string inputs. The CPS FlexOM solution enables communication, controls and remote product upgrades.

#### Key Features

- NFPA 70, NEC 2017 compliant
- Touch safe DC Fuse holders adds convenience and safety
- CPS FlexOM Gateway enables remote FW upgrades
- Integrated DC disconnect switch
- Protection Functions for enhanced reliability and safety
- 12 MPPTs with 36 fused inputs or 24 unfused inputs
- Copper and Aluminum compatible AC connections
- NEMA Type 4X outdoor rated, tough tested enclosure
- Full power capacity up to 42°C
- Standard 5 year warranty with extensions to 20 years

Model Name	CPS SCH275KTL-DO/US-800
<b>DC Input</b>	
Max. DC Input Voltage	1500V
Operating DC Input Voltage Range	500-1500Vdc
Start-up DC Input Voltage / Power	600Vdc / 300W
Number of MPP Trackers	12
MPPT Voltage Range @ PF>0.99 <sup>1</sup>	880-1300Vdc
Max. PV Short-Circuit Current	600A, 50A per MPPT
Number of DC Inputs	36 Fused Inputs, 3 per MPPT or 24 Non-Fused Inputs, 2 per MPPT (determined by SKU)
DC Disconnection Type	Load-rated DC switches
DC Surge Protection	Type II
<b>AC Output</b>	
Rated AC Output Power @ PF>0.99	275kW
Max. AC Apparent Power	275kVA
Rated Output Voltage	800Vac
Output Voltage Range <sup>2</sup>	704-880Vac
Grid Connection Type	3-Phase / PE
Max. AC Output Current @800Vac	198.5A
Rated Output Frequency	60Hz
Output Frequency Range <sup>2</sup>	57 - 63Hz
Power Factor	>0.99 (±0.8 adjustable)
Current THD @ Rated Load	<3%
Max. Fault Current Contribution (1 Cycle RMS)	215.2A
Max. OCPD Rating	250A
AC Surge Protection	Type II
<b>System and Performance</b>	
Max. Efficiency	99.0%
CEC Efficiency	98.5%
Stand-by / Night Consumption	5W
<b>Environment</b>	
Enclosure Protection Degree	NEMA Type 4X
Cooling Method	Variable speed cooling fans
Operating Temperature Range <sup>3</sup>	-22°F to +140°F / -30°C to +60°C (derating from +107°F / +42°C)
Operating Humidity	0 to 100%
Operating Altitude	8202ft / 2500m (no derating)
Audible Noise	<80dBA @ 1m and 25°C
<b>Display and Communication</b>	
User Interface and Display	LED indicators, WiFi + APP
Inverter Monitoring	Modbus RS485 / PLC / CAN
Site Level Monitoring	CPS FlexOM (1 per 32 inverters)
Modbus Data Mapping	SunSpec / CPS
Remote Diagnostics / FW Upgrade Functions	Standard / (with FlexOM Gateway)
<b>Mechanical</b>	
Dimensions (HxWxD)	26.8 x 41.3 x 15.7in (680 x 1050 x 400mm)
Weight	Approx. 260lbs / 118kg
Mounting / Installation Angle	Vertical installation
AC Termination	Stud Type Terminal (Wire range: 3/0AWG – 600kcmil AL/CU, Lugs not supplied)
DC Termination	36 Fused Input: Screw Clamp Fuse Holder (Wire range: #14 - #6 AWG CU) 24 Non-Fused Input: Screw Clamp Terminal (Wire range: #14 - #8 and #6 - #4 AWG CU)
Fused String Inputs (3 per MPPT) <sup>4</sup>	20A fuses provided (Fuse values up to 30A acceptable)
<b>Safety</b>	
Certifications and Standards	UL1741SA-2018, CSA-22.2 NO.107.1-01, IEEE1547-2018, FCC PART15
Selectable Grid Standard	IEEE 1547-2018, CA Rule 21, ISO-NE, HECO Rule 14H
Smart-Grid Features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-Var, Freq-Watt, Volt-Watt
<b>Protection Functions</b>	
Reactive Power at Night	Yes
IV Curve Tracing	Yes
Insulation Resistance Monitoring	Yes
Onboard Fault Oscillography	Yes
PV String Current Monitoring	Yes
Residual Current Monitoring	Yes
Input Reverse Polarity Protection	Yes
Output Overcurrent Protection	Yes
Output Short-Circuit Protection	Yes
Output Overvoltage Protection	Yes
DC Arc-Fault Protection	Optional
<b>Warranty</b>	
Standard	5 Years
Extended Terms	10, 15 and 20 years

1) See user manual for further information regarding MPPT Voltage Range when operating at non-unity PF

2) The "Output Voltage Range" and "Output Frequency Range" may differ according to the specific grid standard.

3) See user manual for further requirements regarding non-operating conditions.

4) Fused string inputs only applicable to the SCH275KTL 36 input model.



# VSUN

Innovative & Smart

**25**  
YEAR  
QUALITY ASSURANCE

**30**  
YEAR  
POWER OUTPUT GUARANTEE

## VSUN610-132BMH-DG

VSUN610-120BMH-DG

VSUN605-120BMH-DG

VSUN600-120BMH-DG

VSUN595-120BMH-DG

**610W**

Highest power output

**21.55%**

Module efficiency

**2.0%**

First-year degradation warranty

**0.45%**

Annual degradation over 30 years

### KEY FEATURES

**PERC** MBB technology with Circular Ribbon



Higher output power



Half-cell Technology



Positive tolerance offer



Bifacial cells, converting more sunlight into electricity



Better shading tolerance



Load certificates: wind to 2400Pa and snow to 5400Pa



Lower LCOE

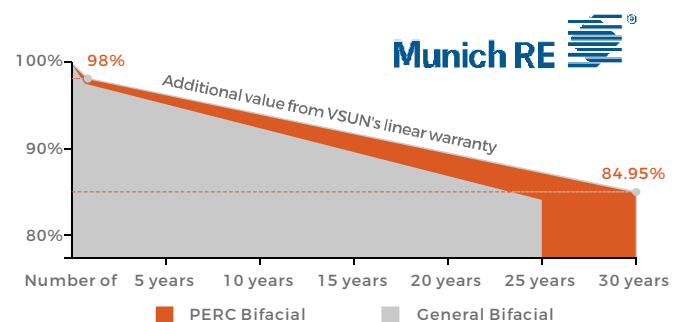
### ABOUT VSUN

Invested by Fuji Solar, VSUN SOLAR is a solar solution provider with headquartered in Tokyo, Japan that offers reliability, high efficiency solar products and technology globally. VSUN is rated as BNEF Tier 1 PV module manufacturer, PVEL Lab "Best performer" and EcoVadis "Bronze Award".

### PRODUCT CERTIFICATION



### WARRANTY



## Electrical Characteristics at Standard Test Conditions(STC)

Module Type	VSUN610-120BMH-DG	VSUN605-120BMH-DG	VSUN600-120BMH-DG	VSUN595-120BMH-DG
Maximum Power - Pmax (W)	610	605	600	595
Open Circuit Voltage - Voc (V)	41.82	41.65	41.48	41.3
Short Circuit Current - Isc (A)	18.69	18.62	18.57	18.51
Maximum Power Voltage - Vmpp (V)	34.73	34.56	34.39	34.21
Maximum Power Current - Imp (A)	17.57	17.51	17.45	17.4
Module Efficiency	21.55%	21.38%	21.20%	21.02%

Standard Test Conditions (STC): irradiance 1,000 W/m<sup>2</sup>; AM 1.5; module temperature 25°C. Pmax Sorting : 0~5W. Measuring Tolerance: ±3%.

Remark: Electrical data do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.

## Electrical Characteristics with different rear side power gain(reference to 605 front)

Pmax (W)	Voc (V)	Isc (A)	Vmpp (V)	Imp (A)	Pmax gain
635	41.65	19.55	34.56	18.39	5%
666	41.65	20.48	34.56	19.26	10%
724	41.73	22.34	34.48	21.01	20%
755	41.73	23.28	34.48	21.89	25%

## Material Characteristics

Dimensions	2172×1303×35mm (L×W×H)
Weight	36.4kg
Frame	Silver anodized aluminum profile
Front Glass	AR-coating Semi-toughened glass, 2.0mm
Cell Encapsulation	EVA (Ethylene-Vinyl-Acetate) or POE
Back Glass	Glazed & Semi-toughened glass, 2.0mm
Cells	12×10 pieces monocrystalline solar cells series strings
Junction Box	IP68, 3 diodes
Cable	Potrait: 500 mm (cable length can be customized), 1×4 mm <sup>2</sup> or 12AWG, Connector: PV-ZH202B(Manufacturer by Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.)

## System Design

Maximum System Voltage [V]	1500
Series Fuse Rating [A]	30
Bifaciality	70%±10%
Fire Rating	Class C for IEC and TYPE 29 for US
PV module classification	Class II
Temperature Range	-40 °C to + 85 °C
Maximum Surface Load	5,400 Pa
Application class	Class A
Withstanding Hail	Maximum diameter of 25 mm with impact speed of 23 m/s

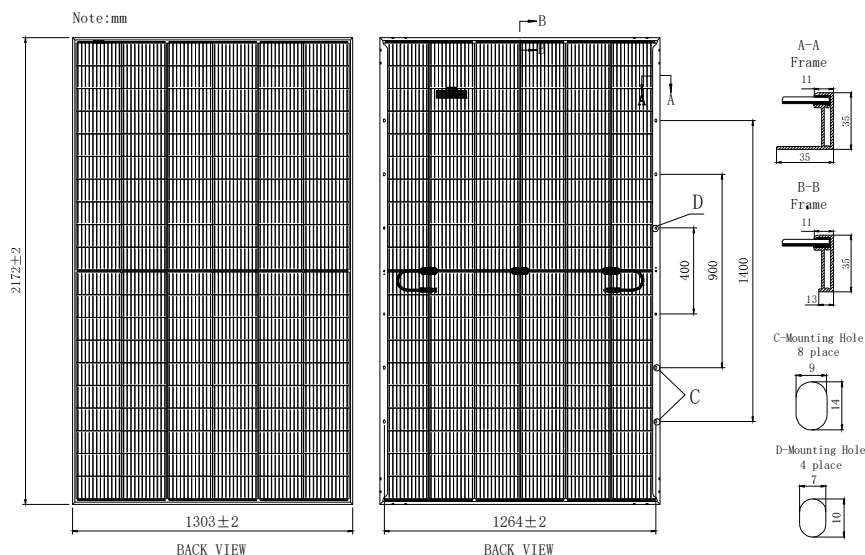
## Packaging

Dimensions(L×W×H)	1325×1125×2510mm
Container 20'	/
Container 40'	/
Container 40'HC	540

## Temperature Characteristics

NOCT	45°C(±2°C)
Voltage Temperature Coefficient	-0.25%/°C
Current Temperature Coefficient	+0.04%/°C
Power Temperature Coefficient	-0.34%/°C

## Dimensions



## IV-Curves

