





The HelioWing series is a modular, flexible solar power plant solution for commercial and residential applications. A HelioWing will not only enable you to produce your own energy, but make parking and charging your car a charm. Integrated LEDs with motion sensors guide you in the dark until you are in the perfect parking position. Thanks to our integrated battery pack, you can store your valuable, green energy in the HelioWing itself or use it right away to charge your EV. All autonomously and independent either grid connected or off-grid. Store up to 24 kWh with the integrated battery pack. HelioWing is a standalone

system and does not require any specific spatial circumstances to be set up. The easy installation allows placement in tight spaces to make the most out of your valuable real estate whereas the durable and sturdy construction allows for placement in wide, open spaces to withstand high winds and weather. The HelioWing 7 is our model for larger spaces, with a solar array of 22' 7" in width by 22' 8" in depth at 9' 6" entry height. It holds 24 x 410W bifacial 108 half-cell modules with 9.84kWp of solar PV power.

GENERAL

Shelve Temperature	-20°C / -4°F — 50°C / 122°F
Operation Ambient Temperature	-25°C / -13°F — 50°C / 122°F
Humidity	5% - 95% (RH) No Condensation
Altitude	<13120ft (inverter), 10000ft (battery)
Communication	• WiFi • GSM (4G SIM card) • Cloud monitoring and programming
Installation Modes (Up to 6 units parallel)	• Single unit, off-grid • Single unit, off grid w/ generator • Single unit, grid tied
Warranty — Structure	20 years
Warranty — Electric system	10 years
Warranty — PV modules	min. 87,8% capacity after 20 years
Warranty — EV Charger	3 years

STRUCTURE

Material, Main Structure	Steel (50 KSI), powder coated
Material, Column Covers	Steel, powder coated (Configurable color)
Standards	Engineered to IBC / ASCE 7-16
Max. Ground snow load	50 psf ground snow (@100 mph wind speed)
Max. Wind speed	150 mph wind speed (@20 psf ground snow)
Seismic Category	D
Saltwater Spray tested	1000h +
Mounting Types	• Mounted to a foundation • Mounted to an existing structure

FOUNDATION

Foundation Types	• Concrete pile foundation • Concrete spread foot foundation • Helical pile foundation
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PV SYSTEM

Number of PV Panels	24
Rated PV Power	9.84 kWp
Open Circuit Voltage per MPPT	446.40 VDC
CEC Efficiency	96.5 %

LIGHTING

Power Supply	24 VDC, 350 W, MeanWell
Column	4x 84" Industrial grade LED-strip lights
Wing	4x 48" Industrial grade LED-strip lights

ELECTRIC SYSTEM

Voltage	120/240V Split-Phase
AC Output (Grid)	47.5A / 11.4kW
AC Output (Backup / Off-Grid)	47.5A / 11.4kW
AC Input (Grid)	71.3A / 17.1kW
Self Consumption	• Inverter: 20 W • Battery Heating: 600 W (When in use) • Column Ventilation: 9,6 W • Lighting: 220 W (When in use) • EV-Charger: 30 W
Operation Modes	• Off-grid • Off-grid with generator • Smart load • Sell back (grid tied) • Sell back, household limited (grid tied) • Meter zero (grid tied) • Time of use (grid tied) • Peak shaving (grid tied)

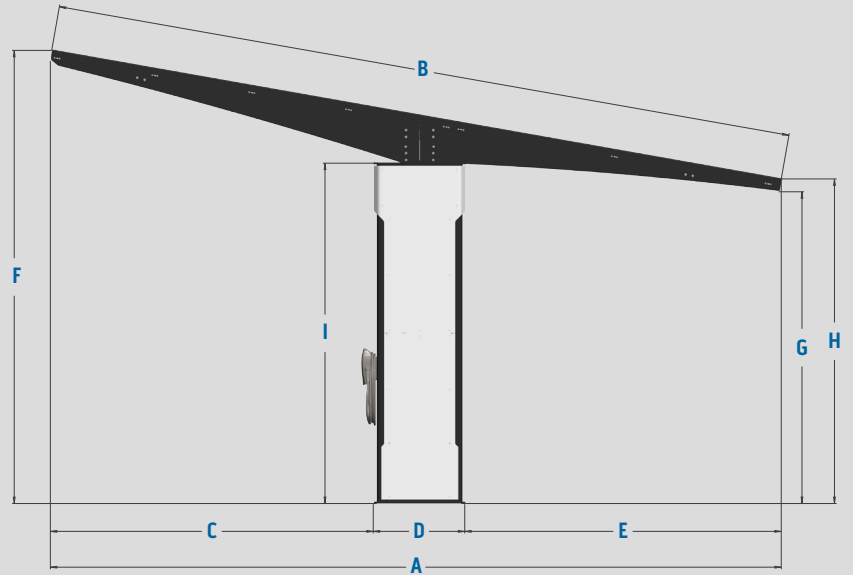
BATTERY

Storage Capacity	36kWh
Nominal Voltage	358.4V
Charging Voltage	392V — 408V
Charging Cycles	6000+ (>80% capacity)

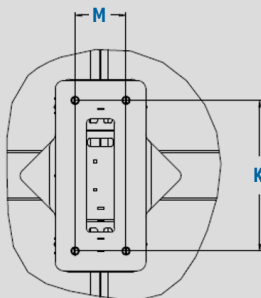
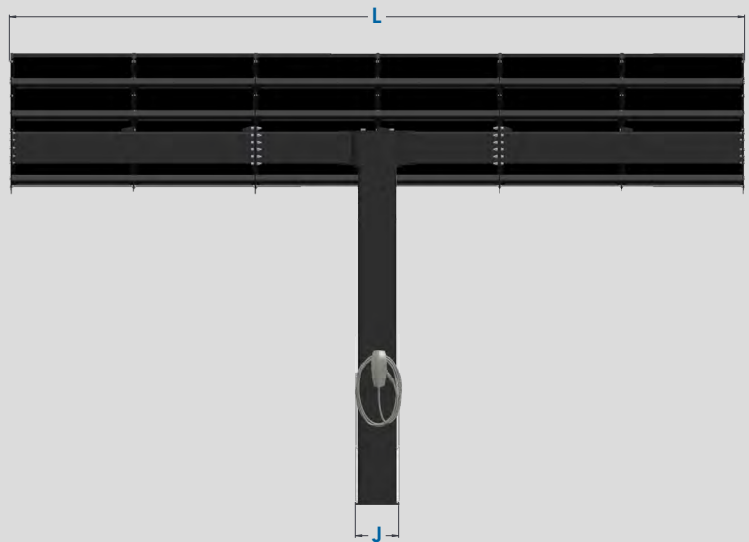
SHIPPING

Crate Dimensions (L x W x H)	13' 6" x 3' 8" x 3' 8"
Shipping Crate Weight	• Main structure + Crate: 6200lbs • Inverter: 120lbs • Battery: 700lbs • EV charger: 30lbs • Light kit: 20lbs
Weight PV Panels	1250lbs

Roof area	512 sqf
Roof inclination	10°, fixed
Covered depth A	22' 4"
Solar array length B	22' 8"
Overhang column to eaves C	9' 11"
Column depth D	2' 10"
Overhang column to ridge E	9' 8"
Ridge height with flush foundation F	13' 10"
Entry height with flush foundation G	9' 6"
Eaves height with flush foundation H	9' 11"
Crossbeam hight with flush foundation I	10' 5"



Covered width L	22' 7"
Column width J	1' 4"
Mounting hole pattern [M x K]	9" x 26.6"





S6-EH1P 11.4K-H-US INVERTER



The ultra-efficient Solis 11.4k inverter is perfectly suited for our system, both in size and functionality. It enables seamless integration of an external generator alongside PV, compatibility with the HelioWing battery, and grid-tied operations, including easy meter integration for selling energy back to the grid. It also connects to the World4Solar platform via web or mobile app for convenient monitoring, control, and servicing.

FEATURES

Topology Design	Transformerless
Back-up switch time	<10 ms
Max. allowable phase imbalance	100%
UPS switching	Automatic
300ms surge power back up overload capacity	Up to 170% (130A) (supports industrial HVAC systems)
Optimization, module-level monitoring and rapid shutdown	Yes
BYPASS switch available	Yes
UL 9540 certified with World4Solar battery system	Yes
Fully integrated in the World4Solar platform	Yes
Fully integrated in the HelioWing E-Stop system	Yes
Intelligent AC coupling scheme	Yes
Whole-home backup and generator integration	Yes
Load shading function	Yes (with an external SolisHub)

COMPLIANCE & PROTECTIONS

Compliance	UL 1741, UL 1741 SA, UL 1741 SB, IEEE1547-2018&2020, UL 1699B, UL 1998, California Rule 21, NEC 690.12-2020, CAN/CSA C22.2107.1-1, FCC Part 15 Class B
Ground fault detection	Integrated
Residual (leakage) current detection	Integrated
AFCI (DC arc-fault circuit protection)	Integrated
DC reverse-polarity protection (PV only)	Integrated
Manual inverter bypass switch	Integrated
Protection class / Over voltage category	Class I / Class II



WORLD4SOLAR BATTERY

The Battery Energy Storage System (B.E.S.S.) is a part of the World4Solar ecosystem. It's designed to maximize storage capacity for our HelioWing system with 36kWh and further enhances the system's modularity due to its broad compatibility with other components. By meeting all the sophisticated requirements of the HelioWing, the B.E.S.S. delivers unparalleled efficiency in terms of the size-to-storage ratio and also integrates seamlessly with the sleek design of the HelioWing itself. The batteries are extremely resilient and capable of withstanding the toughest conditions, to offer a longer service lifespan than competitive solutions.

BMS SPECIFICATIONS

Communication	RS485 / CAN
Protection	Temperature, over charge, under-voltage, over-current, short circuit, input for aux. E-Stop
Control & Monitoring	via World4Solar App
Auxiliary power output	24VDC / 14.6A
IP Outdoor Rating - BMS	IP54 **

GENERAL SPECIFICATIONS

Battery Type	LFP (LiFePO4)
Charging Cycles	5000+
Max. Charge / Discharge Current	75A / 26.88kW (Continuous Use)
Recom. Charge / Discharge Current	50A / 17.92kW (Continuous Use)
Default SOC control	95% to 5% (90% to 10% recommended)
Communication Port	CAN / RS485 / Wifi
Storage Temperature	-4°F – 122°F / -20°C – 50°C
Saltwater Spray Tested	1000h +
Operating Humidity	0 to 95% RH
Operating Altitude	< 9000ft / 3000m
IP Outdoor Rating - Battery	IP67 *
Compliance	UL9540A, CEC, UL1973, CE-EMC, CB62619, IEC62040, IEC63056, VDE2510
Warranty	5 years (extendable to 10 years)

* Indicates total protection against dust ingress and protection against immersion in water between 15 centimeters and 1 meter in depth for 30 minutes.

** Indicates protection against dust limited ingress (no harmful deposit) and protection against water splashed from all directions - limited ingress permitted.



APTOS DNA-108-BF10 PV MODULES



Designed and engineered in Silicon Valley — The high-end, bi-facial modules from Aptos are the perfect fit in terms of power capacity, durability and esthetics.

MECHANICAL PROPERTIES

Cell Type	Monocrystalline
Glass	0.126", anti-reflection coating, high transmission, low iron, tempered glass
Frame	Anodized Aluminum Alloy
Junction Box	IP68
Dimensions	67.7" x 44.6" x 1.3"
Weight	48.5 lbs

TEST OPERATING CONDITIONS

Maximum Load Capacity (Per UL 1703)	5400 PA Snow Load / 5400 PA Wind Load
Fire Performance Class	Class C / Type 1, 2



TESLA GEN 3 WALL CONNECTOR EV CHARGER



The Wall Connector is the most convenient charging solution on the market. Thanks to its efficiency, WiFI connectivity and elegant design, it complements the HelioWing not only in functionality, but also in aesthetics.

Cable Length	24'
Ground Fault Circuit Interrupter	Integrated, no additional required (CCID20)
Wi-Fi	2.4 GHz, 802.11b/g/n
Agency Approvals	cULus - E351001
Power Output	7,6 kW



WORLD4SOLAR STRUCTURE

High strength steel (50 KSI). A HelioWing comes with a pre-approved permitting packet including structure, foundation and the preassembled electrical system from independent civil engineering offices. All components (inverter, battery, light control system, AC connection box) are protected from the elements inside the structure. All cables including the solar panel junction boxes and cables are routed to be covered and protected in order to maintain a clean look from any perspective. Additional space is provided to add power optimizers and/or RSD devices, if needed.

CONCRETE PILE FOUNDATION



ONE DAY

STAGE 1

Drilling to Calculated Depth



STAGE 2

Insert Rebar, Anchor Bolts,
Conduit and Grounding Rod



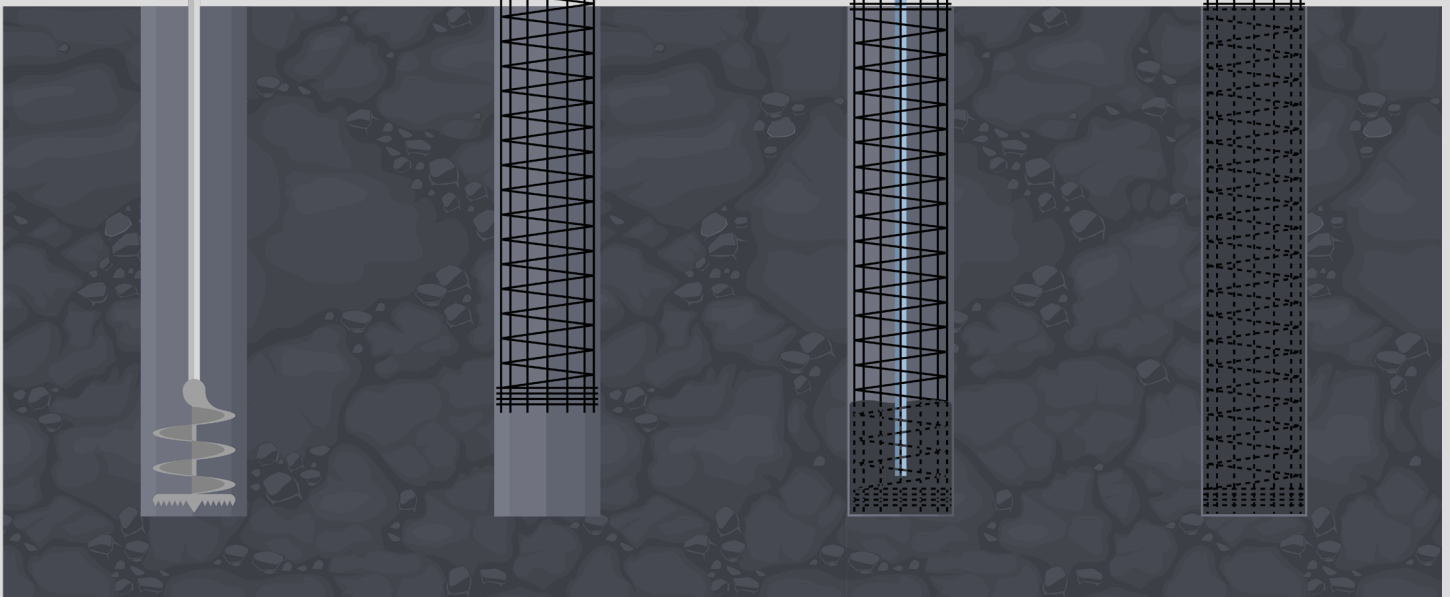
STAGE 3

Cast Concrete



STAGE 4

Finished Foundation



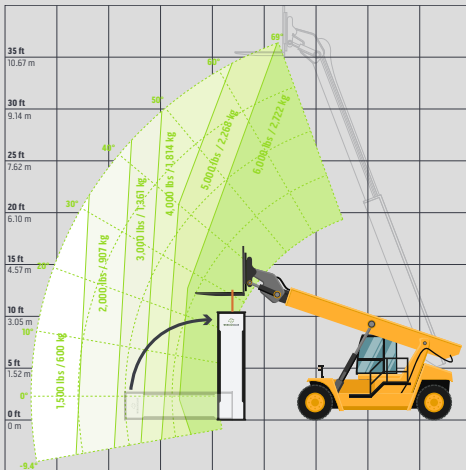
ERECTING THE HELIOWING WITH REACH-FORKLIFT

The Heliowing is designed to be installed with a wide variety of different lifting equipment, e.g. **telescopic forklift**, **truck mounted crane**, **mobile crane**, **spider crane**, **excavator** or others.

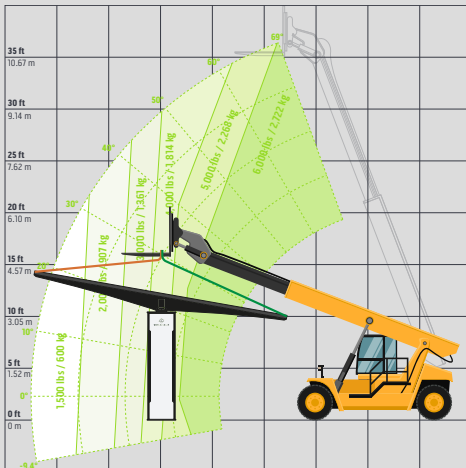
The following table shows the min. parameter for the individual lifts during the installation process:

Lift scenario	Req. Capacity	Horizontal Reach	Vertical Reach	Chain 1 	Chain 2 
Column installation	1500 lbs	Min. 12'	Min. 15'	Min. 20"	-
HW7 Wing installation – rear					
HW7 Wing installation – front	5000 lbs	Min. 12'	Min. 24'	Min. 14'	Chain 17'
HW7 Wing installation – side					

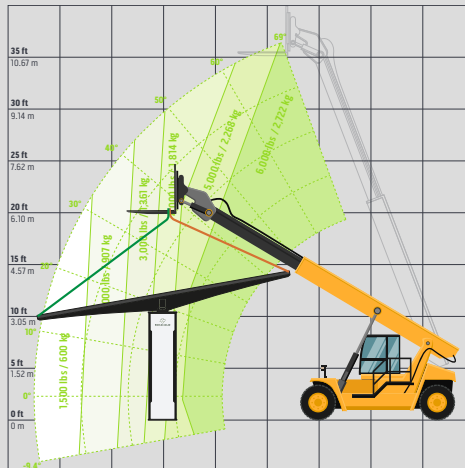
Column installation



HW7 Wing installation – rear



HW7 Wing installation – front



HW7 Wing installation – side

