



DATASHEET HELLOWING 5





INTRODUCTION HELIOWING 5



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 5 is our model for smaller spaces, with a solar array of 22' 7" in width by 17' 0" in depth at 11' 0" entry height. It holds 18 x 410 W bifacial 108 half-cell modules with 7.38 kWp of solar PV power.

GENERAL

Shelve Temperature	-20°C / -4°F – 50°C / 122°F
Ambient Temperature	-25°C / -13°F – 50°C / 122°F, > 40°C / 104°F Derating, < -15°C / 5°F no battery charging
Humidity	5% - 95% (RH) No Condensation
Altitude	< 13,120 ft
Communication	<ul style="list-style-type: none"> - GSM (SIM card not included) - Cloud monitoring and programming
Installation Modes (Up to 6 units parallel)	<ul style="list-style-type: none"> - Single unit, off-grid - Single unit, off grid w/ generator - Single unit, grid tied - Single unit, grid tied w/ backup battery
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, 2-layer spray paint, RAL 9005
Material, Column Covers	Steel, 2-layer spray paint, configurable color
Standards	Engineered to IBC 2018/ ASCE 7-16
Standard Loads (ground snow load @ wind load)	- 70 lbs / sqf @ 130mph
Seismic Category	D
Mounting Types	<ul style="list-style-type: none"> - Mounted to an existing structure - Concrete foundation

LIGHTING

Power Supply	24 V DC, 350 W, MeanWell
Column	4x 84" Industrial grade LED-strip lights
Wing	2x 48" Industrial grade LED-strip lights

PV SYSTEM

Number of PV Panels	18
Rated PV Power	7.38 kWp
Open Circuit Voltage per MPPT	334.80 VDC
CEC Efficiency	96.5 %

ELECTRIC SYSTEM

2 Phase (grid tied)	240 V, 63 A, 6 AWG
2 Phase (off-grid)	208 V Split Phase, 63 A, 6 AWG
Neutral	6 AWG
Continuous AC Power to Grid / Load	9.00 kW
Self Consumption	<ul style="list-style-type: none"> - Inverter: 60 W - Battery Heating: 85 W - Battery Cooling: 9,6 W - Lighting: 220 W - EV-Charger: 30 W
Operation Modes	<ul style="list-style-type: none"> - 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

Battery Options	<ul style="list-style-type: none"> - No battery - 1 Block: 8.352 kWh - 2 Blocks: 16.704 kWh - 3 Blocks: 25.056 kWh
Nominal Voltage	48 V
PV to Battery to AC Efficiency	93 %

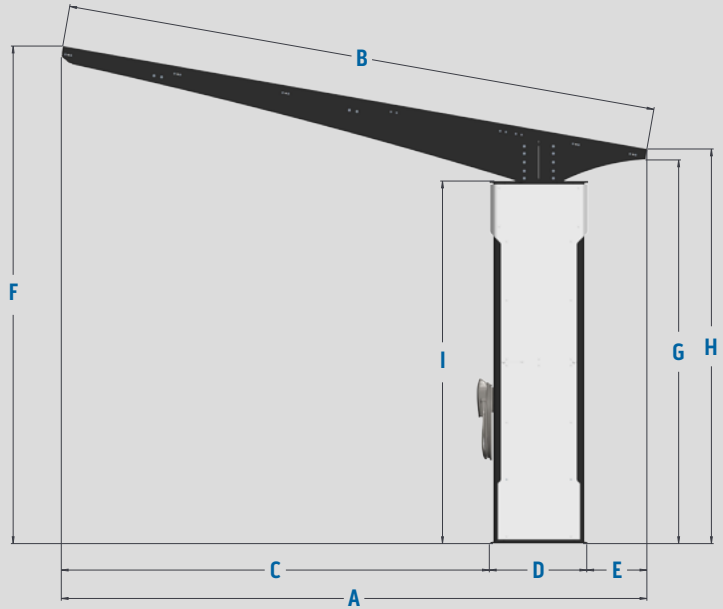
FOUNDATION

Concrete Foundation Types	<ul style="list-style-type: none"> - Pile Foundation - Excavated Foundation
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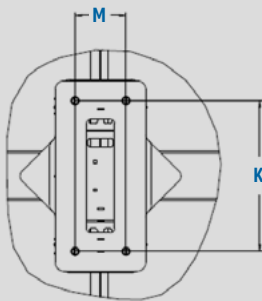
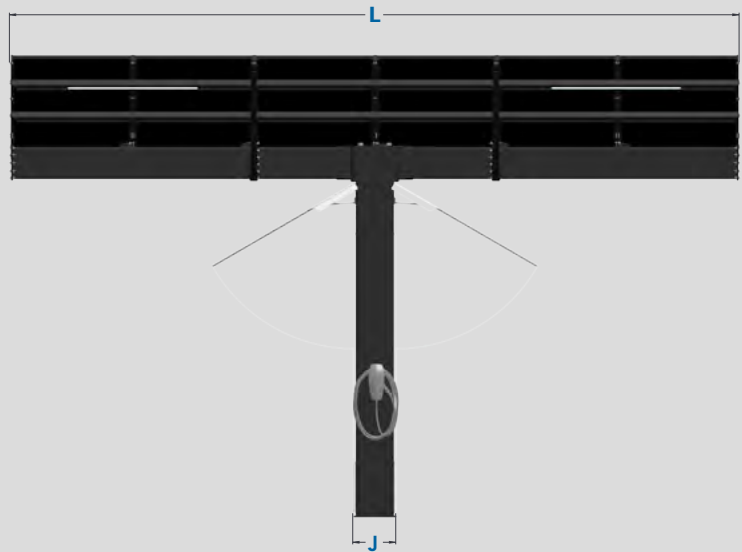
SHIPPING

Main Structure Crate Dimensions (L x W x H)	13' 6" x 3' 8" x 3' 8"
Main Structure Crate Weight (excl. PV panels)	4950 lbs
Weight PV Panels	880 lbs

Roof area	384 sq ft
Roof inclination	10°, fixed
Covered depth A	16' 10"
Solar array length B	17' 0"
Overhang column to eaves C	12' 4"
Column depth D	2' 10"
Overhang column to ridge E	1' 9"
Ridge height with flush foundation F	14' 4"
Entry height with flush foundation G	11' 0"
Eaves height with flush foundation H	11' 4"
Crossbeam height 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"





SOL-ARK 12K-2P-N INVERTER



Sol-Ark offers all-in-one solutions for inverters. Therefore we can guarantee that the system will run flawless for a long time even under challenging conditions without producing unwanted issues.

PROTECTIONS & CERTIFICATIONS

Electronics Certified Safety by SGS Labs to NEC & UL Specs – NEC 690.4B & NEC 705.4/6	Yes
Grid Sell Back – UL1741-2010/2018, IEEE1547a-2003/2014, FCC 15 Class B, UL1741SA, CA Rule 21, HECO Rule 14H	Yes
PV DC Disconnect Switch – NEC 240.15	Integrated
Ground Fault Detection – NEC 690.5	Integrated
PV Rapid Shutdown Control – NEC 690.12	Integrated
PV Arc Fault Detection – NEC 690.11	Integrated
PV Input Lightning Protection	Integrated
PV String Input Reverse Polarity Protection	Integrated
AC Output Breakers – 63 A	Integrated
250A Battery Breaker / Disconnect	Integrated
Surge Protection	DC Type II / AC Type II

AC OUTPUT SPECS

Surge AC Power 10sec	16,000 VA L-L (240 V)
Surge AC Power 100ms	25,000 VA L-L (240 V)
Fault Current 100ms	104 A L-L (240 V)
Design (DC to AC)	Transformerless DC
Response Time (Grid-Tied to Off-Grid)	4 ms
Power Factor	+/- 0.9 - 1.0

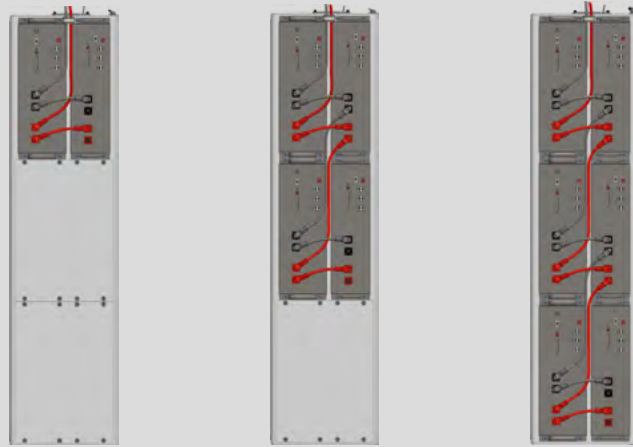


PYLONTECH US3000C & US5000 BATTERY



The US3000C & US5000 are lithium storage systems of the latest generation. The accumulators were specially developed to fully meet the high demands placed on a solar accumulator today. Maximum safety and a long service life are guaranteed even with regular deep discharge thanks to the latest technology.

We combine one US3000C and one US5000 unit to one battery block. A maximum of three of such blocks can be integrated into the Heliowing.



	1 BLOCK	2 BLOCKS	3 BLOCKS
Nominal Capacity	8.352 kWh	16.704 kWh	25.056 kWh
Battery Racks	1x US3000C, 1x US5000	2x US3000C, 2x US5000	3x US3000C, 3x US5000
Charging / Discharging Power	5.6 kW	9 kW	9 kW
Communication Mode	Closed loop, CAN bus, RS485		
Charging Curve	3-Stage w/ Equalization		
Depth of Discharge	95%		
Heating	Electric		
Cooling	Forced air		
Cycle Life	> 6,000 @ 25°C / 77°F		
Ambient Temp. Charging	-15°C / 5°F – 45°C / 115°F		
Ambient Temp. Discharging	-25°C / -13°F – 45°C / 115°F		
Protections / Certifications	UL1973 / UL9540A / IEC62619 / IEC63056 / ICE61000-6-2/3 / UN38.3		

OVERVIEW COMPONENTS

HELIOHING 5



APTOS DNA-108-BF10 PV MODULES



Designed and engineered in Silicon Valley – The high-end double glass, 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"
Output Cable	0.16"± 12 AWG, 39.37"
Weight	48.5 lbs

TEST OPERATING CONDITIONS

Maximum Series Fuse	25 A
Maximum Load Capacity (Per UL 1703)	5400 PA Snow Load / 5400 PA Wind Load
Fire Performance Class	Class C / Type 1, 2

OVERVIEW COMPONENTS

HELIOWING 5



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

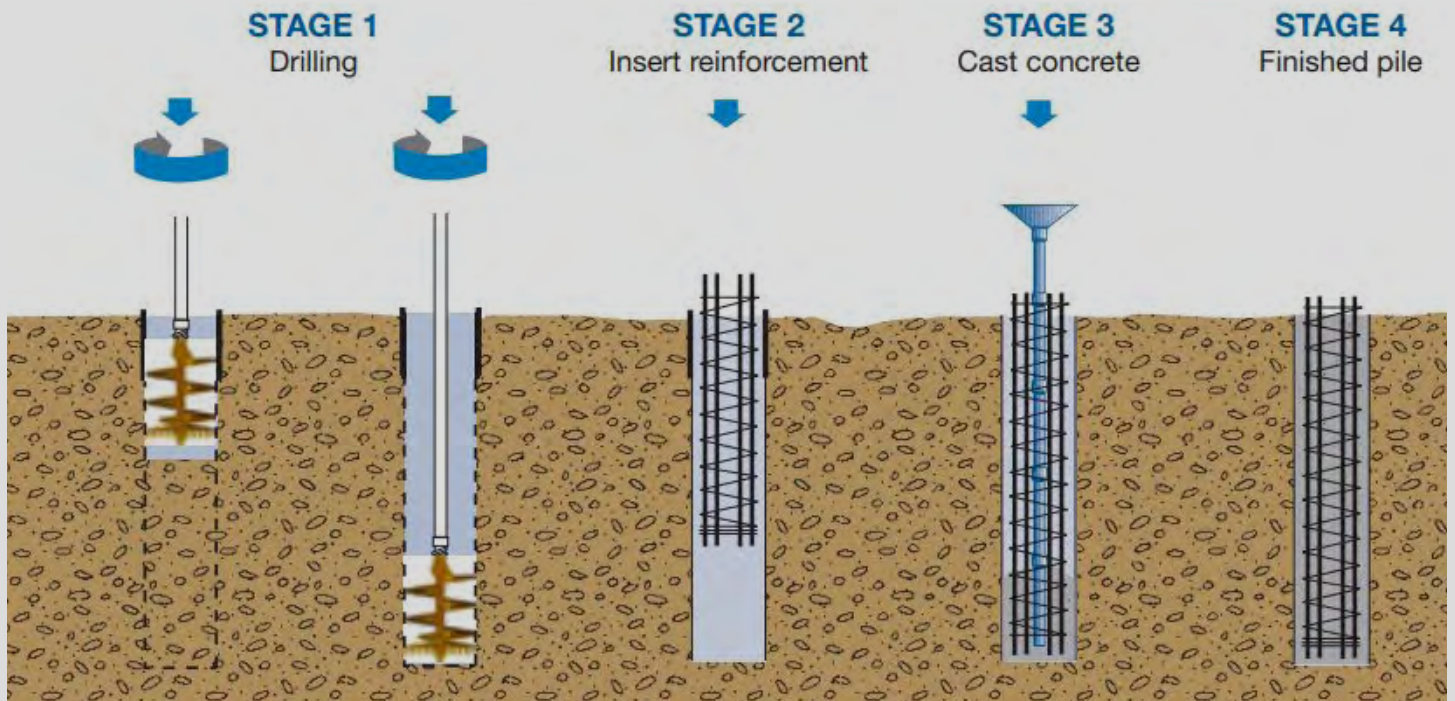


KERN STEEL STRUCTURE



US made high strength steel, robotically welded, manufactured in an ISO 9001/AISC certified US facility. A HelioWing comes with a pre-approved permitting package including structure, foundation and the pre-assembled 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.



PILE FOUNDATION



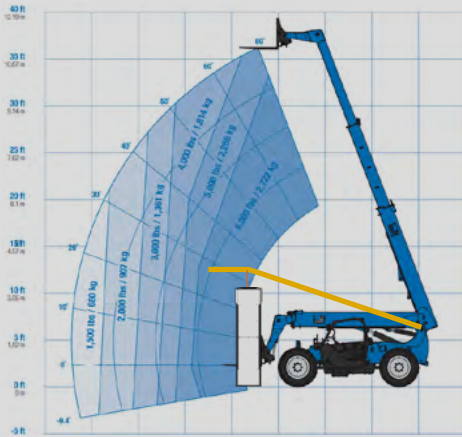
ERECTING THE HELIOWING WITH REACH-FORKLIFT

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.

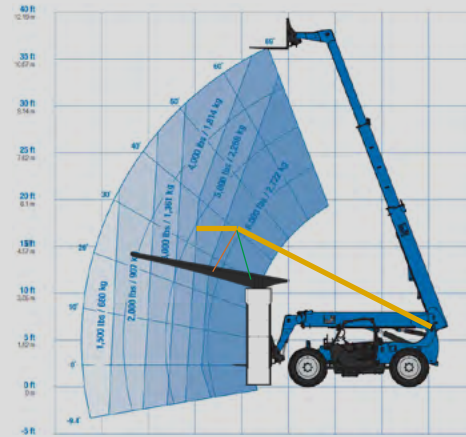
The following table shows the min. parameter for the individual lifts during the installation process:

Lift scenario	Req.capacity	Horizontal reach	Vertical reach	Chain 1 	Chain 2 
Column installation	1500 lbs	Min. 4'	Min. 12'	Min. 15"	-
VW5 Wing installation – rear		Min. 7'			
VW5 Wing installation – front	3500 lbs	Min. 11'	Min. 18'	Min. 80", Max. 120"	Chain 1 + 5%
VW5 Wing installation – side		Min. 12'			

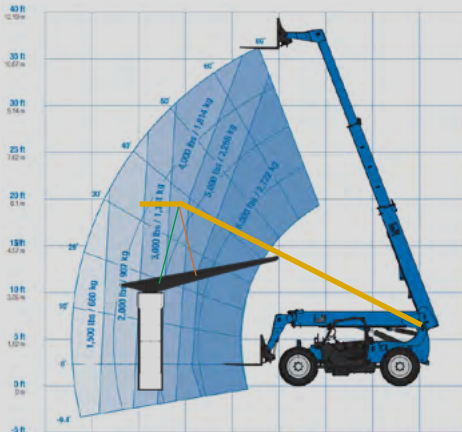
Column installation



VW5 Wing installation – rear



VW5 Wing installation – front



VW5 Wing installation – side

