



# 144HC M10 Bifacial Module

144 Half-Cut Monocrystalline 520W – 540W

## 21%

Utilizes the latest M10 size super high efficiency Monocrystalline PERC cells. Half cut design further reduces cell to module (CTM) losses.

## Stability & Looks

Rugged, double webbed frame design withstands wind, snow, and other mechanical stresses. Framed Glass-Backsheet aesthetic is ideal for high visibility installation.

## Anti-Reflective

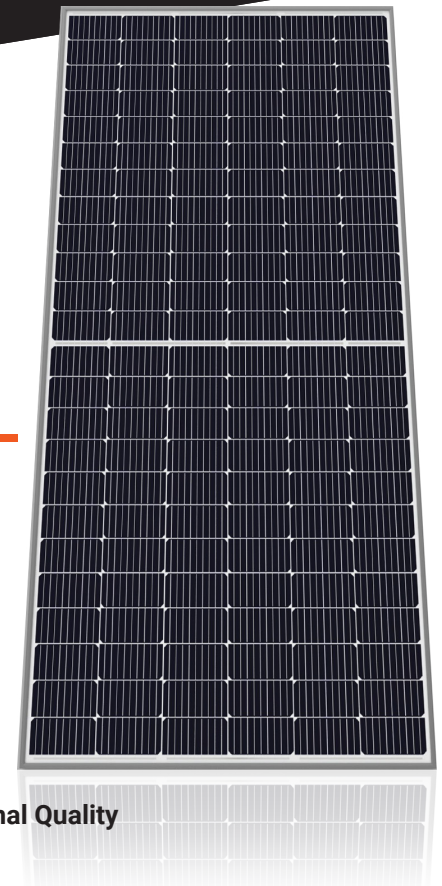
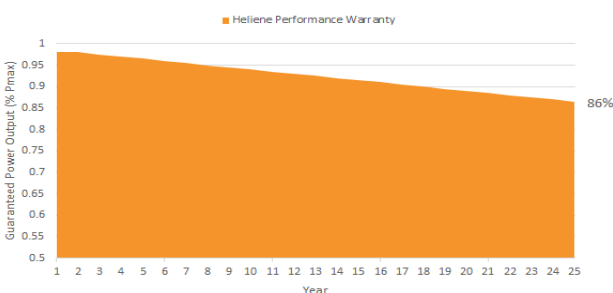
Premium solar glass with anti reflective coating delivers more energy throughout the day

## High Reliability

Proven resistance to PID and reliable in high temperature and humidity environments.

## No Compromise Guarantee

15 Year Workmanship Warranty  
25 Year Linear Performance Guarantee



**Manufactured Using International Quality System Standards: ISO9001**

**Half-Cut Design with Split Junction Box Technology**

**Bifacial Technology Enabling Additional Energy Harvest from Rear Side**

**1500V System Voltage Rating**

### World-class Quality

- Heliene's fully automated manufacturing facilities with state-of-the-art robotics and computer aided inspection systems ensure the highest level of product quality and consistency
- All manufacturing locations are compliant with international quality standards and are ISO 9001 certified
- Heliene modules have received Top Performer rankings in several categories from PV Evolution Labs (PV EL) independent quality evaluations

### Bankable Reputation

- Established in 2010, Heliene is recognized as highly bankable Tier 1 manufacturer of solar modules and has been approved for use by the U.S. Department of Defense, U.S. Army Corps of Engineers and from numerous top tier utility scale project debt providers
- By investing heavily in research and development, Heliene has been able to stay on the cutting edge of advances in module technology and manufacturing efficiency

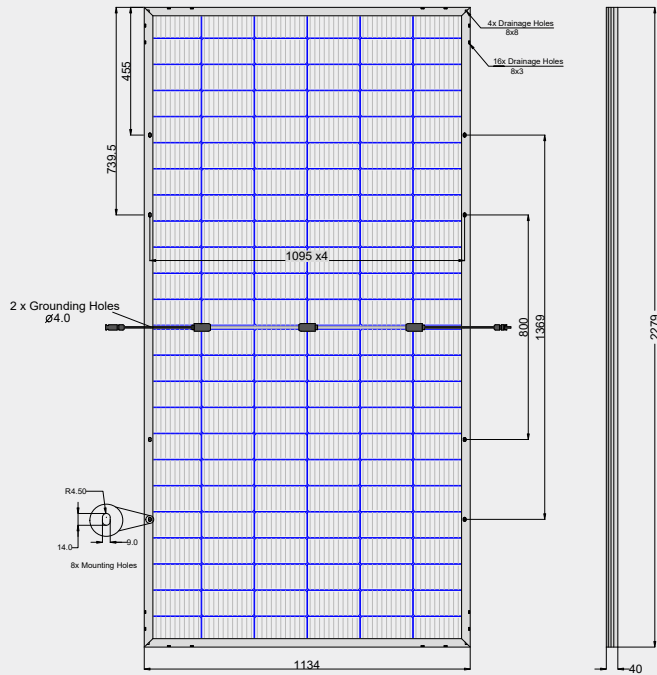
### Local Sales, Service, and Support

- With sales offices across the U.S. and Canada, Heliene prides itself on unsurpassed customer support for our clients. Heliene has become the brand of choice for many of the leading residential installers, developers and Independent Power Producers due to our innovative technology, product customization capability and just in time last-mile logistics support
- Local sales and customer support means answered phone calls and immediate answers to your technical and logistics questions. We understand your project schedules often change with little warning and endeavor to work with you to solve your project management challenges

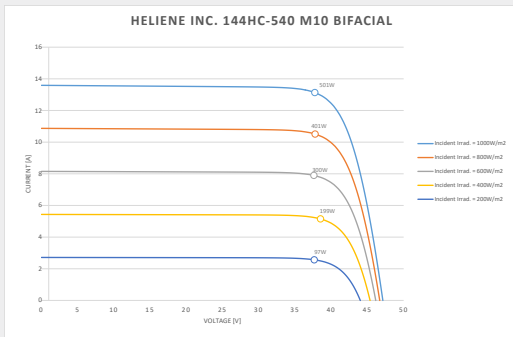
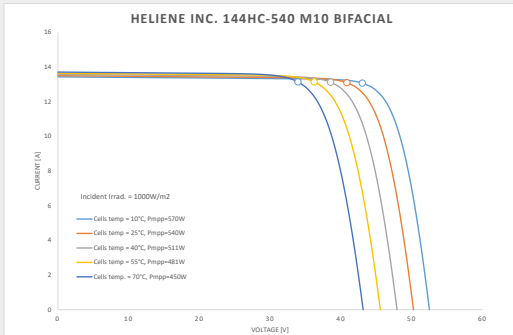




Dimensions for 144HC M10 Bifacial Series Modules



I-V Curves for 144HC M10 Bifacial Series Modules



Certifications & Listing



Electrical Data (STC)

Peak Rated Power	$P_{mpp}$ (W)	540	535	530	525	520
Maximum Power Voltage	$V_{mpp}$ (V)	42.32	42.13	41.94	41.75	41.56
Maximum Power Current	$I_{mpp}$ (A)	12.77	12.70	12.64	12.58	12.52
Open Circuit Voltage	$V_{oc}$ (V)	50.22	49.97	49.72	49.23	48.73
Short Circuit Current	$I_{sc}$ (A)	13.50	13.44	13.37	13.32	13.28
Module Efficiency *	Eff (%)	20.9	20.7	20.5	20.3	20.1
Maximum Series Fuse Rating	MF (A)	30	30	30	30	30
Power Output Tolerance		[- 0/+3%]				
Bifaciality Factor		70%				

STC - Standard Test Conditions: Irradiation 1000 W/m<sup>2</sup> - Air mass AM 1.5 - Cell temperature 25 °C

Electrical Data (NMOT)

Maximum Power	$P_{mpp}$ (W)	400	395	390	385	380
Maximum Power Voltage	$V_{mpp}$ (V)	39.19	38.58	38.58	37.97	37.96
Maximum Power Current	$I_{mpp}$ (A)	10.21	10.24	10.11	10.14	10.01
Open Circuit Voltage	$V_{oc}$ (V)	47.13	46.89	46.66	46.20	45.73
Short Circuit Current	$I_{sc}$ (A)	10.87	10.82	10.77	10.72	10.70

NMOT - Nominal Module Operating Temperature:  
Irradiance at 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind speed 1m/s

Mechanical Data

Solar Cells	144 Half Cut, M10, 182mm, PERC Cells
Module Construction	Framed Glass-Backsheet
Dimensions (L x W x D)	2279 x 1134 x 40 mm (89.72 x 44.65 x 1.6 inch)
Weight	29.2 kg (64.3 lbs)
Frame	Double Webbed 15-Micron Anodized Aluminum Alloy
Glass	3.2mm Low-Iron Content, High-Transmission, PV Solar Glass with Anti Reflective Coating
Junction Box	IP-68 rated with 3 bypass diodes
Output Cables	0.3-meter Symmetrical Cables
Connectors	Multi-Contact/ Stäubli MC4

Certifications

UL Certification: UL61215, UL61730

Temperature Ratings

Nominal Operating Cell Temperature (NOCT)	+45°C (±2°C)
Temperature Coefficient of $P_{max}$	-0.36%/°C
Temperature Coefficient of $V_{oc}$	-0.28%/°C
Temperature Coefficient of $I_{sc}$	0.034%/°C

Maximum Ratings

Operational Temperature	-40°C to +85°C
Max System Voltage	1500V
Mech. Load Test (Front)	113 psf / 5400Pa
Mech. Load Test (Back)	50 psf / 2400 Pa
Fire Type	Type 1

Warranty

15 Year Manufacturer's Workmanship Warranty  
25 Year Linear Power Guarantee

Packaging Configuration

Modules per box: 27 pieces  
Modules per 53' trailer: 702 pieces



The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the ongoing innovation and product enhancements. Heliene Inc. reserves the right to make necessary adjustment to the information described herein at any time without prior notice. PV modules should be handled and installed only by qualified people. Please carefully read safety and installation instructions available for download from Heliene website before using Heliene PV modules. For warranty details, please refer to Product Warranty Document, also available for download from Heliene website.

# SOLECTRIA® XGI 1500-166 SERIES

## PREMIUM 3-PHASE TRANSFORMERLESS UTILITY-SCALE INVERTERS

### FEATURES

- Made in the USA with global components
- Buy American Act (BAA) compliant
- Four models:
  - 125kW/125kVA,
  - 125kW/150kVA,
  - 150kW/166kVA,
  - 166kW/166kVA
- Additional models available certified to UL1699b, Photovoltaic DC Arc-Fault Circuit Protection
- 99.0% peak efficiency
- Flexible solution for distributed and centralized system architecture
- Advanced grid-support functionality Rule 21/UL1741SB
- Robust, dependable, & built to last
- Lowest O&M and installation costs
- Access all inverters on site via WiFi from one location
- Remote diagnostics and firmware upgrades
- SunSpec Modbus Certified
- Tested compatible with the TESLA PowerPack Microgrid System app for system visibility

### OPTIONS

- String combiners for distributed and centralized systems
- Web-based monitoring
- Extended warranty



Yaskawa Solectria Solar's XGI 1500 utility-scale string inverters are designed for high reliability and built of the highest quality components that were selected, tested and proven to last beyond their warranty.

XGI 1500 inverters provide advanced grid-support functionality and meet the latest IEEE 1547 and UL1741SB standards for safety. They are the most powerful 1500 VDC string inverters in the PV market and have been engineered for both distributed and centralized system architecture.

Designed and engineered in Lawrence, MA, XGI inverters are assembled and tested at Yaskawa America's facilities in Buffalo Grove, IL. They are Made in the USA with global components and are compliant with the Buy American Act.

# SOLECTRIA® XGI 1500-166 SERIES TECHNICAL DATA

## SPECIFICATIONS

SOLECTRIA XGI 1500 Model		XGI 1500-125/125-UL XGI 1500-125/125-UL-A	XGI 1500-125/150-UL XGI 1500-125/150-UL-A	XGI 1500-150/166-UL XGI 1500-150/166-UL-A	XGI 1500-166/166-UL XGI 1500-166/166-UL-A
DC Input	Absolute Max Input Voltage	1500 VDC	1500 VDC	1500 VDC	1500 VDC
	Max Power Input Voltage Range (MPPT)	860-1250 VDC	860-1250 VDC	860-1250 VDC	860-1250 VDC
	Operating Voltage Range (MPPT)	860-1450 VDC	860-1450 VDC	860-1450 VDC	860-1450 VDC
	Number of MPP Trackers	1 MPPT	1 MPPT	1 MPPT	1 MPPT
	Max Operating Input Current	148.3 A	148.3 A	178.0 A	197.7 A
	Max Operating PV Power	128 kW	128 kW	153 kW	170 kW
	Max DC/AC Ratio   Max Rated PV Power	2.6   332 kW	2.6   332 kW	2.2   332 kW	2.0   332 kW
	Max Rated PV Short-Circuit Current ( $\sum I_{sc} \times 1.25$ )	500 A	500 A	500 A	500 A
AC Output	Nominal Output Voltage	600 VAC, 3-Ph	600 VAC, 3-Ph	600 VAC, 3-Ph	600 VAC, 3-Ph
	AC Voltage Range	-12% to +10%	-12% to +10%	-12% to +10%	-12% to +10%
	Continuous Real Output Power	125 kW	125 kW	150 kW	166 kW
	Continuous Apparent Output Power	125 kVA	150 kVA	166 kVA	166 kVA
	Max Output Current	120 A	144 A	160 A	160 A
	Nominal Output Frequency	60 Hz	60 Hz	60 Hz	60 Hz
	Power Factor (Unity default)	+/- 0.80 Adjustable	+/- 0.80 Adjustable	+/- 0.80 Adjustable	+/- 0.80 Adjustable
	Total Harmonic Distortion (THD) @ Rated Load	<3%	<3%	<3%	<3%
	Grid Connection Type	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND
	Fault Current Contribution (1 cycle RMS)	144 A	173 A	192 A	192 A
Efficiency	Peak Efficiency	98.9%	98.9%	99.0%	99.0%
	CEC Average Efficiency	98.5%	98.5%	98.5%	98.5%
	Tare Loss	2.75 W	2.75 W	2.75 W	2.75 W
Temperature	Ambient Temp Range	-40°F to 140°F (-40C to 60C)		-40°F to 140°F (-40C to 60C)	
	De-Rating Temperature	122°F (50C)		113°F (45C)	
	Storage Temperature Range	-40°F to 167°F (-40C to 75C)		-40°F to 167°F (-40C to 75C)	
	Relative Humidity (non-condensing)	0 - 95%		0 - 95%	
	Operating Altitude	Full Power up to 9,840 ft (3.0 km); De-Rate to 70% of Full Power at 13,123 ft (4.0 km)			
Communications	Advanced Graphical User Interface	WiFi			
	Communication Interface	Ethernet			
	Third-Party Monitoring Protocol	SunSpec Modbus TCP/IP			
	Web-Based Monitoring	Optional			
	Firmware Updates	Remote and Local			
Testing & Certifications	Safety Listings & Certifications	UL1741SB, IEEE 1547, UL 1998 (All models) UL 1699b Photovoltaic Arc-Fault Circuit Protection Certified (-A models)			
	Advanced Grid Support Functionality	Rule 21, UL 1741SB			
	Testing Agency	ETL			
	FCC Compliance	FCC Part 15 (Subpart B, Class A)			
Warranty	Standard and Options	5 Years Standard; Option for 10 Years			
Enclosure	Acoustic Noise Rating	73 dBA @ 1 m; 67dBA @ 3 m			
	DC Disconnect	Integrated 2-Pole 250 A DC Disconnect			
	Mounting Angle	Vertical only			
	Dimensions	Height: 29.5 in. (750 mm)   Width: 39.4 in. (1000 mm)   Depth: 15.1 in. (380 mm)			
	Weight	270 lbs (122 kg)			
	Enclosure Rating and Finish	Type 4X, Polyester Powder-Coated Aluminum			

