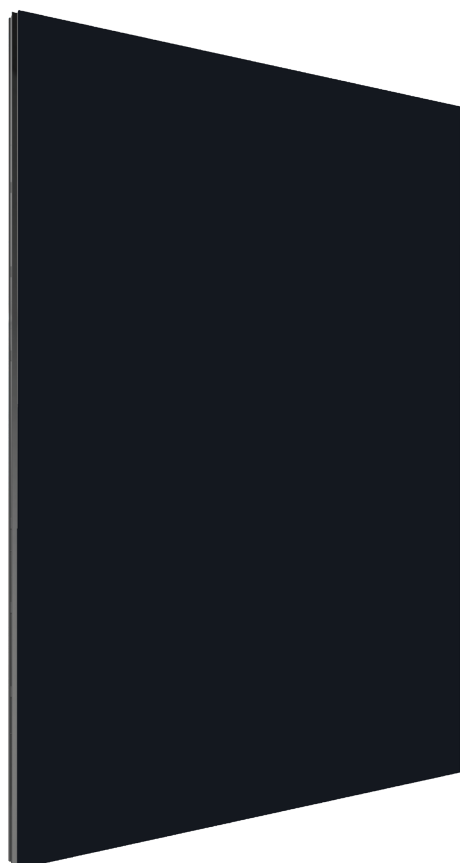




Series 6 *Plus*.

455-480 Watt Thin Film Solar Module

First Solar Series 6 *Plus* photovoltaic (PV) modules set the industry benchmark for reliable energy production, optimized design and environmental performance. The advanced design is optimized for every stage of your application, significantly reducing balance of system, shipping, and operating costs.



More Lifetime Energy per Nameplate Watt

- Industry's best (0.3%) warranted degradation rate
- Superior temperature coefficient, spectral response and shading behavior
- Unlike crystalline silicon modules, First Solar's thin film technology does not experience the losses associated with LID and LeTID
- Anti-reflective coated glass enhances energy production



Innovative Module Design

- Under-mount frame provides the cleaning and snowshedding benefits of a frameless module while protecting edges against breakage
- Innovative SpeedSlots combine the robustness of bottom mounting with the speed of top clamping while utilizing fewer fasteners to achieve the industry's fastest installation times and lowest mounting hardware costs
- Dual junction box design optimizes module-to-module connections and eliminates the need for wire management



Best In-Class Reliability & Durability

- Manufactured under one roof with 100% traceable QA/QC
- Independently tested and certified for reliable performance that exceeds IEC standards in high temperature, high humidity, extreme desert and coastal applications
- Inherently immune to and warranted against power loss from cell cracking
- Durable glass/glass construction



Best Environmental Profile

- Fastest energy payback time in the industry
- Carbon footprint that is 2.5X lower and a water footprint that is 3X lower than mono crystalline silicon panels on a life cycle basis
- Global PV module recycling services available through First Solar or customer-selected third-party

19.0%

MAXIMUM EFFICIENCY

30YR

LINEAR PERFORMANCE
WARRANTY

98%

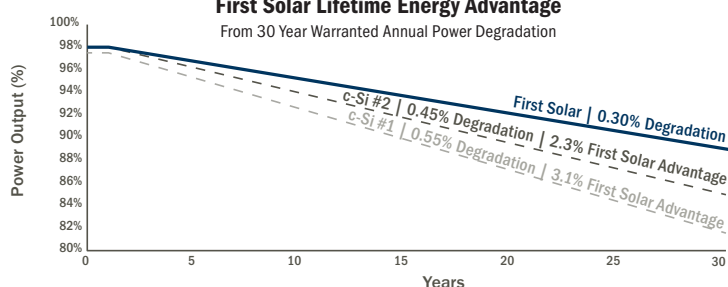
WARRANTY START POINT

0.3%

WARRANTED ANNUAL
DEGRADATION RATE¹

First Solar Lifetime Energy Advantage

From 30 Year Warranted Annual Power Degradation



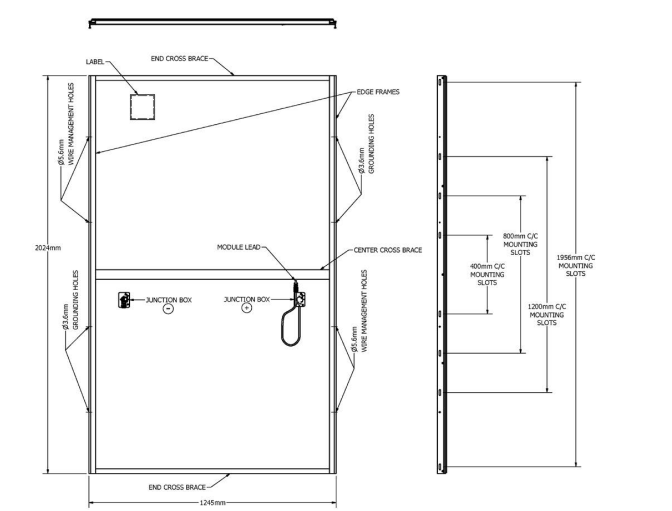
Learn more about First Solar
and Series 6 *Plus*
at firstsolar.com/S6

Series 6 *Plus*

Electrical Specifications

RATINGS AT STANDARD TEST CONDITIONS (1000W/m ² , AM 1.5, 25°C) ²							
SERIES 6 PLUS HL MODEL TYPES: FS-6XXX-P / FS-6XXXA-P (XXX = NOMINAL POWER)							
Nominal Power ³ (-0/+5%)	P _{MAX} (W)	455	460	465	470	475	480
Efficiency (%)	%	18.1	18.3	18.5	18.7	18.9	19.0
Voltage at P _{MAX}	V _{MAX} (V)	187.8	188.8	189.8	191.1	191.5	192.8
Current at P _{MAX}	I _{MAX} (A)	2.42	2.44	2.45	2.46	2.48	2.49
Open Circuit Voltage	V _{OC} (V)	222.0	222.9	223.8	224.3	224.8	225.4
Short Circuit Current	I _{SC} (A)	2.58	2.59	2.60	2.61	2.61	2.62
Maximum System Voltage	V _{SYS} (V)	1500 ⁵					
Limiting Reverse Current	I _R (A)	5.0					
Maximum Series Fuse	I _{CF} (A)	5.0					
RATINGS AT NOMINAL OPERATING CELL TEMPERATURE OF 45°C (800W/m ² , 20°C AIR TEMPERATURE, AM 1.5, 1m/s WIND SPEED) ²							
Nominal Power	P _{MAX} (W)	343.6	347.3	351.3	355.0	358.8	362.4
Voltage at P _{MAX}	V _{MAX} (V)	176.2	176.3	177.4	179.3	179.4	180.3
Current at P _{MAX}	I _{MAX} (A)	1.95	1.97	1.98	1.98	2.00	2.01
Open Circuit Voltage	V _{OC} (V)	209.6	210.4	211.3	211.8	212.3	212.7
Short Circuit Current	I _{SC} (A)	2.08	2.09	2.10	2.10	2.11	2.11
TEMPERATURE CHARACTERISTICS							
Module Operating Temperature Range	(°C)	-40 to +85					
Temperature Coefficient of P _{MAX}	T _K (P _{MAX})	-0.32%/°C [Temperature Range: 25°C to 75°C]					
Temperature Coefficient of V _{OC}	T _K (V _{OC})	-0.28%/°C					
Temperature Coefficient of I _{SC}	T _K (I _{SC})	+0.04%/°C					

Mechanical Specifications



PACKAGING INFORMATION		
Model Type	Modules Per Pack	Packs per 40' Container
FS-6XXX-P / FS-6XXXA-P	27	18



LEADING THE WORLD'S
SUSTAINABLE ENERGY FUTURE

Disclaimer

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Certifications & Tests⁴

CERTIFICATIONS & LISTINGS	
IEC 61215:2021 & 61730-1:2016 ⁵ , CE IEC 61701 Salt Mist Corrosion IEC 60068-2-68 Dust and Sand Resistance	
UL	
UL 61730 1500V Listed	
REGIONAL CERTIFICATIONS	
InMetro	SII
MyHijau	RETIE
EXTENDED DURABILITY TESTS	
IEC TS 63209-1 Extended Stress Test Long-Term Sequential Thresher Test PID Resistant	
QUALITY & EHS	
ISO 9001:2015 ISO 14001:2015 ISO 45001:2018 ISO 14064-3:2006 EPEAT Silver Registered	



MECHANICAL DESCRIPTION	
Module/Glass Length	2024mm/2016mm
Module/Glass Width	1245mm/1216mm
Module/Glass Area	2.52m ² /2.45m ²
Module Weight	34.0kg (FS-6XXX-P / FS-6XXXA-P)
Leadwire ⁶	2.5mm ² , 733mm (+) & Bulkhead (-)
Connectors	TE Connectivity PV4-S, MC4-EVO 2, or alternate
Junction Box	IP68 Rated
Bypass Diode	N/A
Cell Type	Thin film CdTe semiconductor, up to 268 cells
Frame Material	Anodized Aluminum
Front Glass	Heat strengthened
Back Glass	Heat strengthened
Encapsulation	Laminate material with edge seal
Frame to Glass Adhesive	Silicone
Load Rating ⁷	2400Pa

Install in portrait only

- 1 Limited power output and product warranties subject to warranty terms and conditions
- 2 All ratings ±10%, unless specified otherwise. Specifications are subject to change
- 3 Measurement uncertainty applies
- 4 Testing Certifications/Listings pending
- 5 IEC 61730-1: 2016 Class II
- 6 Leadwire length from junction box exit to connector mating surface
- 7 1500Pa tentative load rating for 1956mm mounting slots. Higher loads may be acceptable, subject to testing

Solar FlexRack G3-X Fixed Tilt Racking + First Solar Series 6

The High Yield Advantage



Solar FlexRack is one of the market's most trusted brands in solar racking solutions. Its innovative, dependable and cost-competitive solar trackers, fixed tilt racking and project services, dramatically reduce project risks for solar project asset owners, developers and EPCs.

Combine Solar FlexRack's proven track record with First Solar's advanced Series 6 thin film modules for higher project energy yields and ultra-dependable solar project installations.

Solar FlexRack Racking Features

- The ability to mount First Solar Series 6 modules in various portrait configurations to maximize watts per post
- Flexible configurations are available for 1,000V or 1,500V systems
- Quick Connect, upper and lower directional torquing module mounting clamps with integrated bonding for superior installation speed and flexibility
- Hat channel module vertical rails provide required stiffness to support and safeguard the modules' unique construction while maintaining a simple and cost-competitive installation process

The System Features

- A completely integrated and efficient solution that allows for the highest market value proposition and lowest cost to install
- Independently certified for reliable performance in high temperature, high humidity, extreme desert and coastal environments
- First Solar's advanced proven Cadmium Telluride (CdTe) modules deliver higher energy yield, proven reliability and industry-leading durability
- A fully bankable solution with a lower levelized cost of energy that provides better system performance in real-world conditions than conventional modules



Solar FlexRack G3-X Fixed Tilt Racking for First Solar Series 6

Materials

Module Mounting Hardware	Aluminum and Magni 500 coating
Racking Hardware	Hot Dip Galvanized (HDG)
Racking Structure	G90, Hot Dip Galvanized (HDG) per ASTM123 or greater for high corrosion areas
Foundations	Hot Dip Galvanized (HDG) per ASTM123

Design

Orientation	Portrait
Tilt Angle	10° to 35° (custom tilts can be accommodated)
Racking Slope Tolerance	20% east-west and north-south slope accommodations governed by post installation capabilities (does not adversely affect design)
Racking Snow/Wind Loading	Per ASCE7-10 local site specific requirements
Ground Coverage Ratio (GCR)	Combined racking and module solution tolerates higher than typical GCR due to the module's robust shade tolerance
Foundations	Racking is designed to incorporate optimal string sizes and allows for the least amount of posts per modules
Foundation Types	W-sections, roll formed smartpost, round post, ground screw, helical pier, ballast (pre-cast or cast in place)
Module Mounting Types	Quick Connect aluminum clamps with integrated bonding
Warranty & Design Life	20-year product, 30-year service on (HDG) components
Design Standards	Per ASCE7-10 local site specific requirements

40 Years & Over 2.5 Gigawatts

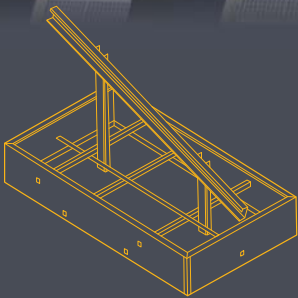
Solar FlexRack, a division of Northern States Metals, is an integrated solar company that offers custom-designed, fixed tilt ground mount and single-axis solar tracking systems in the commercial and utility-scale solar industries. Solar FlexRack offers full turnkey packages including engineering, geotechnical, pullout testing, field, layout, and installation services to address the actual site conditions of an installation and provide a full scope of services from design to delivery and installation. Solar FlexRack has completed over 2.5 GW of solar racking installations in 40 states across America and five countries globally. For more information visit solarflexrack.com.



FLEXRACK SERIES B



3MW Ballasted Project
New Jersey Meadowland's Kearny Landfill



*FlexRack Series B
- Cast in Place*

+ TURN-KEY SERVICES

We're here for you because we care about your projects. From engineering to installation, you can leverage our expert turn-key services on any job from start to finish.

Contact us to see how our team of project engineers, field techs, geologists and other specialists can help make sure your next project is a success.

Experience the Flex

CALL US TO FIND OUT HOW THIS GROUNDBREAKING
RACK CAN IMPROVE HOW YOU DO SOLAR

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Pre-Cast

The FlexRack Series B pre-cast system makes use of a two-support system, rather than the one-support system of its contemporaries; transferring loads into the block through two supports instead of one reduces ballast block thickness. The two-support system also enables the use of a split block system, which requires lighter lifting machinery to accommodate sites with low bearing pressure requirements.

Cast in Place

- » Economical shipping – one piece pre-assembled form
- » Posts are set plumb prior to pouring concrete for ease of installation
- » Ability to level posts after form is set for tolerances in installation
- » Form is a customized roll form shape to optimize size and reduce wasted material
- » Requires only four screws for form assembly. Form assembly in under 3 minutes with 2 people
- » Customizable block size allows form to always be filled to the top
- » Internal bracing eliminates need for construction shoring or additional bracing requirements
- » Utilizes same two support system benefits as pre-cast solution

Reduced costs

Our system uses steel and concrete more efficiently, reducing the overall cost of the unit and allowing for a lower array profile. It's also custom engineered to make installation a breeze—no matter the conditions, the Series B can be installed quickly and efficiently, saving you money on labor costs.

Complete compatibility

The FlexRack Series B offers compatibility with all of our ground systems, including the G2 and G3. That means that all the innovative labor savings features and flexibility are still realized with the Series B. The Series B is offered as a pre-cast system or cast in place to meet project specific requirements.

MATERIALS	
Module Hardware	Magni 560 coating standard. Stainless available upon request
Racking Hardware	Hot Dip Galvanized coating is standard
Racking Structure	G90 galvanized steel standard. Higher coatings available for high corrosion areas
DESIGN	
Orientation	Portrait or Landscape
Tilt Angle	5° - 45° (custom tilts can be accommodated)
Racking Slope Tolerance	20% E/W
Local Ballast Slope	5% N/S, E/W
Wind Speed	Any
Snow Load	Any
Module Accommodation	Any 60 or 72 cell framed module along with any frameless module
Module Mounting Type	Direct bolt directly to horizontal rails (bonded connection)
Foundation Accommodation	Pre-cast or Cast in Place
Warranty	20 years
Design Life	30 year service life on all galvanized components
CERTIFICATIONS AND TESTING	
UL Certification	UL 2703 (Issue 2) compliant
Wind Tunnel Testing	CPP third party testing laboratory
Structural Connection Testing	Element Materials Technology
Code Compliance	Racks are designed using site specific loads (wind, snow, and seismic) per the governing local building codes
Finite Element Modeling	Risa 3D
Engineering	PE stamped drawings and calculations
SERVICES	
Geotechnical Engineering	Field investigation and engineering, laboratory testing, engineering analysis, push/pull tests, ballast design
Structural/Civil Engineering	Preliminary investigation, engineering
Installation	Foundation, racking, module, and module prewiring
Training	Onsite installation training at no additional cost

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