

EcoFoot5D™ Install Guide Appendix – UL2703 Qualification

EcoFoot5D™ High Density 5-Degree Ballasted Racking System

Document No. ES10561

Rev 1.0, September 2017

Ecolibrium Solar's EcoFoot5D™ product has been tested in accordance with the ANSI/UL2703-2015 Standard for Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels. This testing standard includes subjecting samples of the racking to temperature and humidity cycling to simulate component aging, electrical bonding tests on all system components, system grounding tests, tests to verify that use of the system does not increase the risk of fire, and module-specific mechanical load testing.

EcoFoot5D racking maintains a Class A fire rating when installed in landscape or portrait orientation according to the installation instructions, on a low slope roof Class A roof with Type 1 modules and Type 2 modules. When installing Type 2 modules a Ballast Tray is required. For roofs with lower fire ratings, the existing rating is maintained when EcoFoot5D is used.

EcoFoot5D module clamps and wind deflectors are certified as recognized components under UL2703 for system electric bonding when installed with the below listed modules. Rows within an array, having a fuse rating of up to 25 amps, may be grounded via a single properly sized ground lug acting as a Grounding Electrode Conductor (GEC). The EcoFoot5D install guide contains instructions for bonding and grounding modules if deviation from standard installation is required. Per UL2703, the EcoFoot5D system creates a continuous bonded structure with all the below listed modules when installed per instructions in the install guide.

Mechanical load testing is underway and will be conducted in 2 ways. First, load testing will be completed on system components that have been subject to temperature and humidity cycle tests. This verifies the long-term stability of all materials and components used. Second, the modules listed below will be mechanically load tested to the UL2703 standard. The module manufacturer and all approved module series are listed with the resulting load ratings in the table below.

UL2703 System Label: The label shown below is stamped into to the Wind Deflector (identified as component 5 in the installation guide).



*The Date Code **ABCYZZ** shown above will appear on production parts, letters defined as follows:*

- *ABC shall be an acronym for identifying the source factory*
- *Y shall be the Quarter of the year (i.e. 1, 2, 3, 4) of manufacture*
- *ZZ shall be the last 2 digits of the year of manufacture*

The below listed modules are listed for mechanical loading, grounding and bonding according to UL2703. The table continues on the next page.

Note: "XXX" represents module wattage

Manufacturer	Module Series	Max. Downforce w/Mid-span Supports (psf)	Max. Downforce w/o Mid-span Supports (psf)	Max. Uplift (psf)			
Boviet Solar	BVM6612 P-XXX	50	30	11.8			
	BVM6612 P-XXX (BB)						
	BVM6612-M-XXX						
	BVM6612 M-XXX (BB)						
	BVM6610P-XXX						
	BVM6610M-XXX						
	BVM6610M (BB)-XXX						
Hanwha Q Cells	BVM6610P (BB)-XXX	50	20	13.5			
	Q.PRO BFR-G4 XXX						
	Q.PLUS BFR-G4.1 XXX						
	Q.PRO BFR-G4.1 XXX						
	Q.PRO BFR-G4.3 XXX						
	Q.PEAK-G4.1 XXX						
	Q.PEAK-G4.1/MAX XXX						
	Q.PEAK BLK G4.1 XXX						
	Q.PRO G4 XXX						
	Q.PLUS G4 XXX						
	Q.PEAK-G4.1/TAA XXX						
	Q.PEAK BLK G4.1/TAA XXX						
	Q.PLUS BFR G4.1/TAA XXX						
	Q.PLUS BFR G4.1/MAX XXX						
	B.LINE PLUS BFR G4.1 XXX						
	B.LINE PRO BFR G4.1 XXX						
	Q.PRO EC-G4.4 XXX						
	Q.PLUS L-G4.2 XXX				33	10.2	10.2
	Q.PEAK L-G4.2 XXX						
	Q.PLUS L-G4.1 XXX						
Q.PLUS L-G4 XXX							
Q.PRO L-G4 XXX							
Q.PRO L-G4.1 XXX							
Q.PRO L-G4.2 XXX							
B.LINE PLUS L-G4.2 XXX							
B.LINE PRO L-G4.1 XXX							
B.LINE PRO L-G4.2 XXX							

Hyundai	HiS-MXXXTI HiS-SXXXTI	40	30	10.2
Jinko	JKMXXXP-60 JKMXXXP-72	30	30	15.1 15.0
Yingli	YLXXXP-29b YLXXXC-30b	30	30	15.1
Trina	TSM-XXX PA05.08	30	30	15.1
Canadian Solar	CS6P-XXXM	30	30	15.1
	CS6P-XXXP			
	CS6X-XXXP	30	38	15.0
	CS6U-XXXP			
	CS6U-XXXM CS6U-XXXP (1500V) CS6U-XXXM (1500V)	50	25	13.3
LG	LGXXXN2W-G4 LGXXXN2W-A5	30	35.0 18.8	15.0
ReneSola	JCXXXM-24/Ab JCXXXM-24/Bb	30	30	15.0 15.1
Silfab	SLG-M XXX			
	SLG-P XXX			
	SLG-X XXX	30	13.9	13.1
	SSG-M XXX			
	SSG-P XXX			
	SLA-P XXX			
	SLA-X XXX			
	SLA-M XXX SSA-M XXX SSA-P XXX	40	30.0	13.3
SolarWorld	SW Poly Pro SW XXX			
	SW Poly 2.5 SWXXX			
	Sunmodule Plus SW Mono SWXXX	30	30	15.1
	Sunmodule Protect SW Mono SWXXX			

Notes:

- Testing is underway for module data listed as TBD and will be available soon.
- Testing for loads on downslope are not required for ballasted racking.
- The above list is not exhaustive. New modules are being tested on an ongoing basis. Contact Ecolibrium Solar directly for specific module information and Letters of Completion from TÜV Rheinland.

Revision History

Revision	Description of Changes	Date
1.0	Initial Release	2017-September-05

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