

MetalX™ Install Guide Appendix – UL2703 Qualification

MetalX™ Rail-Less Racking System

Document No. ES10948

Rev 1.0, May 2019

MetalX™ Rail-Less Racking 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.

UL2703 Qualification: In cases where UL 2703 certification is required, the MetalX system conforms to the UL2703 Standard for grounding and bonding, mechanical loading, and fire ratings. The MetalX system may be used to ground and/or mount a PV module complying with UL1703 only when the specific module has been evaluated for grounding and /or mounting in compliance with the included instructions. Specific modules evaluated and approved as part of UL2703 certifications are listed here.

Module Types: MetalX is certified to be installed with standard framed PV modules according to the approved module list.

Mechanical Loading: MetalX is certified to UL2703 for mechanical loading for the modules listed here. Contact EcolibriumSolar.com to determine span requirements for specific jobsite.

Fire Testing: MetalX is certified to UL2703/1703 Fire Resistance Standard with the following requirements:

- Instructions in this guide must be followed.
- The MetalX system must be mounted over a fire-resistant roof covering rated for the application.
- Modules may be installed in landscape or portrait orientation.

For pitches greater than 2:12 (9.46 degrees):

- EcoX is certified to Class A with Type 1 and 2 modules.

For pitches less than 2:12 (9.46 degrees), aka “flat” or “low-slope” roofs:

- EcoX is certified to Class A with Type 1 modules.

Grounding and Bonding: MetalX is certified to UL2703 for grounding and bonding. The grounding and bonding test evaluates MetalX as a system with approved modules. MetalX creates a continuous bonded structure when installed per requirements outlined in the “MetalX Installation Guide.pdf,” which is located on our website: www.ecolibriumsolar.com.

Installation Requirements: The “MetalX Installation Guide.pdf,” located at www.ecolibriumsolar.com, officially documents the components used and proper methods for a MetalX installation. Bonding elements are incorporated into MetalX components. As the system is built on the roof, components and modules are bonded together. Specific steps to ensure a bonded system are described through the installation guide. It is the installer's responsibility to ensure that the system is safely and properly installed, and that the system is bonded back to a final ground point. There are no specific array size limitations due to the flexible and expandable design of MetalX.

UL2703 System Label: The label shown below is applied to the (Specific Location to Come) on each array during installation. Following is an example of the label.



*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*

Note: "XXX" represents module wattage

Manufacturer	Module Series	Downforce Design Load (psf)	Uplift Design Load (psf)	Downslope Design Load (psf)
Boviet Solar	BVM6610P-XXX	40	40	23.3
	BVM6610M-XXX			
	BVM6610M-XXX (BB)			
	BVM6610P-XXX (BB)			
Canadian Solar	CS6P-XXXM	40	40	23.3
	CS6P-XXXP			
Centrosolar	BM60-XXX BB	40	40	23.3
CertainTeed	CTXXXMxx-01	40	40	23.3
	CTXXXMxx-02			
Flex	FLV-MA-XXXP60AB	40	30	23.3
Hansol	HSXXXTD-AN4	40	30	23.3
	HSXXXTD-AN3			
	HSXXXUD-AN1			
Hanwha Q Cells	Q.PEAK-G3	40	40	23.3
	Q.PEAK-G4			
	Q.PEAK-G4.1			
	Q.PEAK BLK-G4			
	Q.PEAK BLK-G4.1			
	Q.PLUS BFR-G4.1			
	Q.PEAK DUO-G5			
	Q.PEAK DUO BLK-G5			
	Q.PLUS-G3			
	Q.PLUS-G4			
	Q.PRO-G3			
	Q.PRO-G4			
	Q.PRO-BFR-G3			
	Q.PRO-BFR-G4			
Hyundai	HiS-MXXXMG	40	40	23.3
	HiS-MXXXRG			
	HiS-MXXXRW			
	HiS-SXXXRG			
Jinko	JKMXXXM-48	40	30	23.3
	JKMXXXM-60			
	JKMXXXM-60B			
	JKMXXXM-60-V			
	JKMXXXPP-60 JKMXXXPP-60(Plus)			

Manufacturer	Module Series	Downforce Design Load (psf)	Uplift Design Load (psf)	Downslope Design Load (psf)
Jinko (continued)	JKMXXXPP-60-J4	40	30	23.3
	JKMXXXPP-60-V			
	JKMSXXXPP-60			
	JKMXXXPP-72			
	JKMXXXM-72(Plus)			
	JKMXXXM-72			
	JKMXXXPP-72(Plus)			
	JKMXXXPP-72-V			
LG Electronics	LGXXE1C-A5	40	30	23.3
	LGXXN1K-A5			
	LGXXN1C-A5			
	LGXXN2W-A5			
	LGXXQ1C-A5			
	LGXXS1C-A5			
	LGXXS2W-A5			
	LGXXA1C-G4	40	40	23.3
	LGXXN1C-G4			
	LGXXN1K-G4			
	LGXXS1C-G4			
	LGXXS1K-G4			
	LGXXN1C-B3	30	30	23.3
	LGXXS1K-B3			
LGXXS1C-B3				
LGXXA1C-B3				
LONGi	LR6-60-XXXM	40	30	23.3
	LR6-60BK-XXXM			
	LR6-60PB-XXXM			
	LR6-60PE-XXXM			
	LR6-60PH-XXXM			
Panasonic	VBHNXXXSA17	40	30	23.3
	VBHNXXXKA03			
REC Solar	RECXXXPE	40	30	23.3
	RECXXXPE BLK			
	RECXXXTP			
	RECXXXTP BLK			
	RECXXXTP2			
	RECXXXTP2 BLK			
	RECXXXTP2 BLK2			

Manufacturer	Module Series	Downforce Design Load (psf)	Uplift Design Load (psf)	Downslope Design Load (psf)
Silfab	SLG-M XXX	30.5	30	23.3
	SLG-P XXX			
	SLG-X XXX			
	SSG-M XXX			
	SSG-P XXX			
	SLA-M XXX			
	SLA-P XXX			
	SLA-X XXX			
	SSA-P XXX			
	SSA-M XXX			
S-Energy	SNXXXM-10	30	30	23.3
	SNXXXP-10			
	SNXXXP-15			
	SNXXXM-10 (40T)			
	SNXXXP-10 (40T)			
Solaria	PowerXT-XXXR-BX	40	40	23.3
	PowerXT-XXXR-PX			
SolarWorld	Sunmodule SW-XXX	40	40	23.3
	Pro-SW-XXX-Poly			
	Plus-SW-XXX-Mono			
	Plus-SW-XXX-Mono-Black			
Suniva	OPTXXX-60-4-100	40	40	23.3
	OPTXXX-60-4-1B0			
SunEdison	SE-F2XXyyy-zz	40	40	23.3
SunPower	SPR-X21-XXX-C-AC	40	26.1	23.3
	SPR-X21-XXX-D-AC			
	SPR-X20-XXX-D-AC			
	SPR-X22-XXX-D-AC			
	SPR-X21-XXX-BLK-D-AC			
	SPR-X20-XXX-BLK-D-AC			
	SPR-E20-XXX-D-AC			
	SPR-E19-XXX-D-AC			
	SPR-X22-XXX			
	SPR-327NE-WHT-D			
	SPRXXXE-WHT-D			
	SPR-X21-XXX			
	SPR-X20-XXX			

SunPower (con't.)	SPR-X21-XXX-BLK	40	26.1	23.3
	SPR-X20-XXX-BLK			
	SPR-E20-XXX			
	SPR-E19-XX			
Trina	TSM-DD05A.05(II)	40	40	23.3
	TSM-DD05A.08(II)			
	TSM-DD05A.0X			
	TSM-PX05.XX			
	TSM-XXXPA05			
	TSM-XXXPD05			
	TSM-XXXDD14A(II)			
TSM-XXXDE14A(II)	40	38.3	23.3	
TSM-XXXPD14				
TSM-XXXPE14A				
Winaico	WSP-XXXM6	40	40	23.3
Yingli	YLXXXP-29b	40	40	23.3
	YLXXXP-30b			

Note: 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 SolarPTL.

Revision History

Revision	Description of Changes	Date
1.0	Initial Release	2019-May-3

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