

STANDARD INFORMATION

If your product is certified to CSA LTR AE-001 then it needs to be recertified to CSA TIL No. A-40.

Withdrawn Standard:

Photovoltaic Module Racking Systems [CSA LTR AE-001:2012]

Replacement Standard:

PV Module and Panel Racking Mounting System and Accessories [CSA TIL No. A-40:2020]

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: December 14, 2022

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: CSA LTR AE-001 is being withdrawn and replaced by CSA TIL No. A-40. All reports currently certified to CSA LTR AE-001 need to be evaluated and certified to CSA TIL No. A-40 prior to the effective date.

Overview of Changes: Mechanical load requirements have been updated. Specific details of new/revised requirements are found in table below.

Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.



STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
		<i>Additions to existing requirements are <u>underlined</u> and deletions are shown lined-out below.</i>
3	Info	Construction
		Metal parts
3.2		<p>a. Metal parts shall comply with the requirement of Clause 5.5.3 of CSA C22.2 No. 61730-1 : 2019</p> <p>b. <u>Combinations of dissimilar metals above the cutoff line in Annex Table 1 shall not be employed. Combinations of metals not specified in Annex Table 1 shall not generate a potential greater than 0.4 V.</u></p> <p>c. <u>Corrosion protection shall comply with the requirements of Clause 7.2.3 of CSA C22.2 No. 94.2</u></p>
		<i>New clause added;</i>
		Bonding and grounding
3.3		<p>1) Each exposed conductive part of the PV racking systems that is accessible during normal use shall be bonded together.</p> <p>Exception 1: If conductive materials are used only as fasteners for installation and separated from the conductive components of the module by both appropriate insulation and spacings, they are not required to be bonded.</p> <p>Exception 2: Parts which are not possible to carry hazard current during any single ground faults may not be bonded.</p> <p>2) Routine maintenance shall not involve breaking or disturbing the bonding path. A bolt, screw, or other part used for bonding purposes shall not be intended for securing the components to each other.</p> <p>3) Bonding shall be by a positive means, such as clamping, riveting, bolted or screwed connections, or welding, soldering or brazing. The bonding connection shall penetrate all non-conductive coatings, such as paint, anodized coatings or vitreous enamel.</p> <p>4) All joints in the bonding path shall be mechanically secure, independently of any soldering.</p> <p>5) If the bonding connection depends upon screw threads, two or more screws or two full threads of a single screw shall engage the metal.</p> <p>6) A ferrous metal part in the grounding path shall be protected against corrosion by metallic or non-metallic coatings, such as painting, galvanizing, or plating. Stainless steel is acceptable without additional coating.</p> <p>7) A metal-to-metal multiple-bearing pin-type hinge is considered to be an acceptable means for bonding.</p>



CLAUSE	VERDICT	COMMENT
		<p>8) The bonding path of racking shall comply with MST13 Continuity Test for Equipotential Bonding after conditioning of MST52 Humidity Freeze test with following change: the test current could be 2 times of fuse rating or 25A.</p> <p>9) The bonding path shall comply with Clause 3.5, 4.1 and 4.3 of CSA C22.2 No. 0.4.</p> <p>10) The bonding terminal means shall be colored green, marked “G”, “GR”, or “GROUND”, or marked with one of the symbols in Figure 1, unless its intended use is obvious.</p> <p>Note: Metal to which conduit can be secured need not be marked.</p>
		<p>Mechanical Loading</p> <p>The racking shall be subjected to the mechanical loading test of Clause 4.16 <u>Static mechanical load test of CAN/CSA- IEC 61215-2 with below differences:</u></p> <p>1. <u>The minimum required design load is 800 Pa, while the minimum test load is 1200Pa.</u></p> <p>2. <u>Pre-test according to sequence E of IEC61215-1 is not needed.</u></p> <p><u>Exception: Racking systems need further mechanical load evaluation together with building code or on site evaluation. For these racking systems, the installation manual there shall be a statement that the mechanical load need further evaluation before installation.</u></p>
		<p>Markings</p> <p>Photovoltaic module and panel racking shall be plainly marked, in a permanent manner, in a place where the details will be readily visible after installation, with the following:</p> <p>a) registered trademark, trade name, manufacturer’s name, or other recognized symbol of identification of the manufacturer;</p> <p>b) catalogue or type number, or other mark used for distinguishing purposes;</p> <p>c) A racking’s fire resistance rating as a roof covering shall be marked on the racking. If racking does not meet specific fire rating requirements, then the racking shall be marked “Not Fire Rated”.</p> <p>d) <u>Maximum designed load shall be marked or alternatively be provided within the installation manual.</u></p>
		<p>Requirements for Supplied Documents</p> <p>Racking shall be provided with installation instruction describing the methods of installation and ratings of the racking. <u>The maximum size and number (if applicable) of modules or panels intended to be mounted.</u></p>



CLAUSE VERDICT COMMENT

New table added;

Table 1

	Magnesium, magnesium alloys	Zinc, zinc alloys	80 tin/20 Zn on steel, Zn on iron or steel	Aluminum	Cd on steel	Al/Mg alloy	Mild steel	Duralumin	Lead	Cr on steel, soft solder	Cr on Ni on steel, tin on steel, 12% Cr stainless steel	High Cr stainless steel	Copper, copper alloys	Silver solder, Austenitic stainless steel	Ni on steel	Silver	Rh on Ag on Cu, silver/gold alloy	Carbon	Gold, platinum
Gold, platinum	1,75	1,7	1,25	1,2	1,25														
Carbon	1,65	1,6	1,15	1,1	1,15	1,2	1,15	1,2	1,15	1,2									
Rh on Ag on Cu, silver/gold alloy	1,45	1,4	0,95	0,9	0,95	1,1	1,05	1,1	1,15	1,2									
Silver	1,45	1,4	0,95	0,9	0,95	1,1	1,05	1,1	1,15	1,2									
Ni on steel	1,45	1,4	0,95	0,9	0,95	1,1	1,05	1,1	1,15	1,2									
Silver solder, Austenitic stainless steel	1,4	1,4	0,9	0,9	0,95	1,1	1,05	1,1	1,15	1,2									
Copper, copper alloys	1,35	1,4	0,85	0,9	0,95	1,1	1,05	1,1	1,15	1,2									
High Cr stainless steel	1,25	1,35	0,85	0,9	0,95	1,1	1,05	1,1	1,15	1,2									
Cr on Ni on steel, tin on steel, 12% Cr stainless steel	1,15	1,25	0,75	0,85	0,9	0,95	1,1	1,05	1,15	1,2									
Cr on steel, soft solder	1,15	1,25	0,65	0,75	0,85	0,9	0,95	1,1	1,15	1,2									
Lead	1,05	1,1	0,65	0,75	0,85	0,9	0,95	1,1	1,15	1,2									
Duralumin	1,0	1,05	0,55	0,6	0,65	0,7	0,75	0,8	0,85	0,9									
Mild steel	0,9	0,95	0,45	0,5	0,55	0,6	0,65	0,7	0,75	0,8									
Al/Mg alloy	0,85	0,9	0,35	0,4	0,45	0,5	0,55	0,6	0,65	0,7									
Cd on steel	0,8	0,85	0,3	0,35	0,4	0,45	0,5	0,55	0,6	0,65									
Aluminum	0,7	0,75	0,25	0,3	0,35	0,4	0,45	0,5	0,55	0,6									
80 tin/20 Zn on steel, Zn on iron or steel	0,55	0,6	0,15	0,2	0,25	0,3	0,35	0,4	0,45	0,5									
Zinc, zinc alloys	0,5	0,55	0,1	0,15	0,2	0,25	0,3	0,35	0,4	0,45									
Magnesium, magnesium alloys	0	0	0	0	0	0	0	0	0	0									

Legend:
 Ag = Silver
 Al = Aluminum
 Cd = Cadmium
 Cr = Chromium
 Cu = Copper
 Mg = Magnesium
 Ni = Nickel
 Rh = Rhodium
 Zn = Zinc

Note: Corrosion due to electrochemical action between dissimilar metals that are in contact is minimized if the combined electrochemical potential is below about 0.6 V. In the table, the combined electrochemical potentials are listed for a number of pairs of metals in common use. Combinations above the dividing line should be avoided.



CLAUSE	VERDICT	COMMENT
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New figure added;

Figure 1



Symbol 5017



Symbol 5019*

**Preferred marking where a symbol is used.*