



# QIMS.E3361 16 - Mounting Systems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules and Panels

## Mounting Systems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules and Panels

See General Information for Mounting Systems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules and Panels

**METAL ROOF INNOVATIONS LTD**

8750 Walker Rd  
Colorado Springs, CO 80908 USA

E336116

Cat. No.	Investigated for Bonding	Investigated for Mechanical Loading	for System Fire Classification (A, B, or C)	Tested in Combination With
<b>Photovoltaic clamp</b>				
S-5! PV KIT With the following roof clamp: S-5-U Mini, S-5-S Mini, S-5-T Mini, S-5-Z Mini, S-5-N Mini, S-5-E Mini, S-5-U, S-5-S, S-5-T, S-5-Z, S-5-N, S-5-E, S-5-V, S-5-H90 S-5! PV KIT [BLK], including S-5! EdgeGrab [Mill] with roof clamp: S-5-Z Mini [BLK] S-5! PV KIT (mill finished), including S-5! EdgeGrab with roof clamp: S-5-Z Mini	See Below	See Below	A*	Any UL1703 Listed module with fire classification rating: Type 1 or Type 2

<p>S-5! PV KIT with the following roof clamps: S-5-U Mini, S-5-S Mini, S-5-T Mini, S-5-Z Mini, S-5-N Mini, S-5-U, S-5-S, S-5-T, S-5-Z, S-5-N, S-5-V, S-5-H90</p>	<p>Y<sup>1</sup></p>	<p>N</p>	<p>See Above</p>	<p>UL Listed PV Modules;                  Canadian Solar Inc: CS6P-260P, CS6P-255P, CS6P-250P, CS6P-245P, CS6P-240P, CS6P-235P, CS6P-230P, CS6P-225P, CS6P-220P, CS6P-215P, CS6P-210P, CS6P-205P, CS6P-200P, CS6P-195P, CS6P-190P, CS6P-185P, CS6P-180P, CS6P-175PCS6P-210PE, CS6P-205PE, CS6P-200PE, CS6P-195PE, CS6P-190PE, CS6P-185PE, CS6P-180PE, CS6P-175PE, CS6P-170PE, CS6P-165PE, CS6P-205PE, CS6P-200PE, CS6P-195PE, CS6P-190PE, CS6P-185PE, CS6P-180PE, CS6P-175PE                  Listed Yingli Energy                  (China) Co Ltd: YL235P-35b, YL240P-35b, YL245P-35b, YL250P-35b, YL255P-35b, YL260P-35b, YL265P-35b, YL270P-35b, YL275P-35b, YL280P-35b, YL285P-35b, YL220P-32b, YL225P-32b, YL230P-32b, YL235P-32b, YL240P-32b, YL245P-32b, YL250P-32b, YL255P-32b, YL260P-32b, YL265P-32b, YL200P-29b, YL205P-29b, YL210P-29b, YL215P-29b, YL220P-29b, YL225P-29b, YL230P-29b, YL235P-29b, YL240P-29b, YL180P-26b, YL185P-26b, YL190P-26b, YL195P-26b, YL200P-26b, YL205P-26b, YL210P-26b, YL215P-26b, YL150P-23b, YL155P-23b, YL160P-23b, YL165P-23b, YL170P-23b, YL175P-23b, YL180P-23b, YL185P-23b, YL150P-23b/2, YL155P-23b/2, YL160P-23b/2, YL165P-23b/2, YL170P-23b/2, YL175P-23b/2, YL180P-23b/2, YL185P-23b/2                  Listed Yingli Green                  Energy Holding Co Ltd:                  YL235P-35b, YL240P-35b, YL245P-35b, YL250P-35b, YL255P-35b, YL260P-35b, YL265P-35b, YL270P-35b, YL275P-35b, YL280P-35b, YL285P-35b, YL220P-32b, YL225P-32b, YL230P-32b, YL235P-32b, YL240P-32b, YL245P-32b, YL250P-32b, YL255P-32b, YL260P-32b, YL265P-32b, YL200P-29b, YL205P-29b, YL210P-29b, YL215P-29b, YL220P-29b, YL225P-29b, YL230P-29b, YL235P-29b, YL240P-29b, YL180P-26b, YL185P-26b, YL190P-26b, YL195P-26b, YL200P-26b, YL205P-26b, YL210P-26b, YL215P-26b, YL150P-23b, YL155P-23b, YL160P-23b, YL165P-23b, YL170P-23b, YL175P-23b, YL180P-23b, YL185P-23b, YL150P-23b/2, YL155P-23b/2, YL160P-23b/2, YL165P-23b/2, YL170P-23b/2, YL175P-23b/2, YL180P-23b/2, YL185P-23b/2.</p>
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<p>S-5! PV KIT With the following roof clamp: S-5-U Mini, S-5-S Mini, S-5-T Mini, S-5-Z Mini, S-5-N Mini, S-5-E Mini, S-5-N, S-5-U, S-5-S, S-5-T, S-5-Z, S-5-E, S-5-V, S-5-H90</p>	<p>Y<sup>1</sup></p>	<p>Y</p>	<p>See Above</p>	<p>UL Listed Trina Solar LTD (+): TSM-205PA05, TSM-210PA05, TSM-215PA05, TSM-220PA05, TSM-225PA05, TSM-230PA05, TSM-235PA05, TSM-240PA05, TSM-245PA05, TSM-250PA05, TSM-255PA05, TSM-260PA05. TSM-205PA05.05, TSM-210PA05.05, TSM-215PA05.05, TSM-220PA05.05, TSM-225PA05.05, TSM-230PA05.05, TSM-235PA05.05, TSM-240PA05.05, TSM-245PA05.05, TSM-250PA05.05, TSM-255PA05.05, TSM-260PA05.05. TSM-205PA05.08, TSM-210PA05.08, TSM-215PA05.08, TSM-220PA05.08, TSM-225PA05.08, TSM-230PA05.08, TSM-235PA05.08, TSM-240PA05.08, TSM-245PA05.08, TSM-250PA05.08, TSM-255PA05.08, TSM-260PA05.08. TSM-250PA14, TSM-255PA14, TSM-260PA14, TSM-265PA14, TSM-270PA14, TSM-275PA14, TSM-280PA14, TSM-285PA14, TSM-290PA14, TSM-295PA14, TSM-300PA14, TSM-305PA14, TSM-310PA14. TSM-250PA14.08, TSM-255PA14.08, TSM-260PA14.08, TSM-265PA14.08, TSM-270PA14.08, TSM-275PA14.08, TSM-280PA14.08, TSM-285PA14.08, TSM-290PA14.08, TSM-295PA14.08, TSM-300PA14.08, TSM-305PA14.08, TSM-310PA14.08. (+) - All Trina models above may be provided with frames of cross sectional dimensions 40 x 35 mm or 40 x 40 mm. TSM-xxxPD05 (60 Cell) and TSM-xxxPD14 (72 Cell)</p>
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<p>S-5! PV KIT [BLK], including S-5! EdgeGrab [Mill] with roof clamp: S-5-Z Mini [BLK] S-5! PV KIT (mill finished), including S-5! EdgeGrab with roof clamp: S-5-Z Mini</p>	<p>Y<sup>1</sup></p>	<p>Y</p>	<p>See Above</p>	<p>UL Listed Sunpower module models: SPR-X21-327, PR-X21-328, SPR-X21-329, SPR-X21-330, SPR-X21-331, SPR-X21-332, SPR-X21-333, SPR-X21-334, SPR-X21-335, SPR-X21-336, SPR-X21-337, SPR-X21-338, SPR-X21-339, SPR-X21-340, SPR-X21-341, SPR-X21-342, SPR-X21-343, SPR-X21-344, PR-X21-345, SPR-X21-346, SPR-X21-347, SPR-X21-348, SPR-X21-349, SPR-X21-350, SPR-X21-351, SPR-X21-352, SPR-X21-353, SPR-X21-354, SPR-X21-355, SPR-X21-356, SPR-X21-357, SPR-X21-358, SPR-X21-359, SPR-X21-360, SPR-X21-361, SPR-X21-362, SPR-X21-363, SPR-X21-364, SPR-X21-365. YY represent X20, X22 and X23 series only. SPR-XYX-370 SPR-XYX-365 SPR-XYX-364 SPR-XYX-363 SPR-XYX-362 SPR-XYX-361 SPR-XYX-360 SPR-XYX-359 SPR-XYX-358 SPR-XYX-357 SPR-XYX-356 SPR-XYX-355 SPR-XYX-354 SPR-XYX-353 SPR-XYX-352 SPR-XYX-351 SPR-XYX-350 SPR-XYX-349 SPR-XYX-348 SPR-XYX-347 SPR-XYX-346 SPR-XYX-345 SPR-XYX-344 SPR-XYX-343 SPR-XYX-342 SPR-XYX-341 SPR-XYX-340 SPR-XYX-339 SPR-XYX-338 SPR-XYX-337 SPR-XYX-336 SPR-XYX-335 SPR-XYX-334 SPR-XYX-333 SPR-XYX-332 SPR-XYX-331 SPR-XYX-330 SPR-XYX-329 SPR-XYX-328 SPR-XYX-327 SPR-XYX-326 SPR-XYX-325 SPR-XYX-324 SPR-XYX-323 SPR-XYX-322 SPR-XYX-321 SPR-XYX-320 SPR-XYX-319 SPR-XYX-318 SPR-XYX-317 SPR-XYX-316 SPR-XYX-315 SPR-XYX-314 SPR-XYX-313 SPR-XYX-312 All module model numbers may be followed by "-COM", or "-BLK"</p>
<p>S-5! PV KIT [BLK], including S-5! EdgeGrab [Mill] with roof clamp: S-5-Z Mini [BLK] S-5! PV KIT (mill finished), including S-5! EdgeGrab with roof clamp: S-5-Z Mini</p>	<p>Y<sup>1</sup></p>	<p>N</p>	<p>See Above</p>	<p>UL Listed Sunpower module models: YY represent E18, E19, E20 and E21 series only. SPR-EYX-335 SPR-EYX-334 SPR-EYX-333 SPR-EYX-332 SPR-EYX-331 SPR-EYX-330 SPR-EYX-329 SPR-EYX-328 SPR-EYX-327 SPR-EYX-326 SPR-EYX-325 SPR-EYX-324 SPR-EYX-323 SPR-EYX-322 SPR-EYX-321 SPR-EYX-320 SPR-EYX-319 SPR-EYX-318 SPR-EYX-317 SPR-EYX-316 SPR-EYX-315 SPR-EYX-314 SPR-EYX-313 SPR-EYX-312 SPR-EYX-311 SPR-EYX-310 SPR-EYX-309 SPR-EYX-308 SPR-EYX-307 SPR-EYX-306 SPR-EYX-305 SPR-EYX-304 SPR-EYX-303 SPR-EYX-302 SPR-EYX-301 SPR-EYX-300 SPR-EYX-299 SPR-EYX-298 SPR-EYX-297 SPR-EYX-296 SPR-EYX-295 SPR-EYX-294 SPR-EYX-293 SPR-EYX-290 SPR-EYX-280 All module model numbers may be followed by "-COM", or "-BLK"</p>

S-5! PV KIT 2.0 with the following roof clamps: S-5-U Mini, S-5-S Mini, S-5-T Mini, S-5-Z Mini, S-5-N Mini, S-5-U, S-5-S, S-5-T, S-5-Z, S-5-N, S-5-V, S-5-H90	Y <sup>1</sup>	Y	See Above	UL Listed PV Module - Jinko Solar model JKMXXXPP-60, 60 cells series, black frame, Jinko Solar model JKMXXXPP-72, 72 cells series, silver frame. where XXX is 260-345. NRTL Listed PV Module - Q Cell model Q.PLUS BFR-G4.1, XXX, 60 cells series, black frame, where XXX is 270-280. NRTL Listed PV module - Q Cell model Q.PRO L-G4 XXX, 72 cells series, silver frame, where XXX is 310-320.
S-5! PV KIT 2.0 with the following roof clamps: S-5-U Mini, S-5-S Mini, S-5-T Mini, S-5-Z Mini, S-5-N Mini, S-5-U, S-5-S, S-5-T, S-5-Z, S-5-N, S-5-V, S-5-H90	Y <sup>1</sup>	Y	See Above	UL Listed Sunpower module models: models SPR-X20-XXX, SPR-X21-XXX, SPR-X22-XXX, SPR-X23-XXX. 96 and 128 cells series. where XXX is from 486 to 435 (128 cells) or 370 to 310 (96 cells). All module model numbers may be followed by "-COM", or "-BLK"  UL Listed Sunpower module models: models SPR-E18-XXX, SPR-E19-XXX, SPR-E20-XXX, SPR-E21-XXX. 96 and 128 cells series. where XXX is from 450 to 390 (128 cells) or 335 to 280 (96 cells) All module model numbers may be followed by "-COM", or "-BLK"
S-5! PV KIT 2.0 with the following roof clamps: S-5-U Mini, S-5-S Mini, S-5-T Mini, S-5-Z Mini, S-5-N Mini, S-5-U, S-5-S, S-5-T, S-5-Z, S-5-N, S-5-V, S-5-H90	Y <sup>1</sup>	Y	See Above	TUV Listed United Renewable Energy (URE) module models: URE D7MxxxH8A / 144 cells 365W - 390 W (IEC 1000 V), URE D7KxxxH8A / 144 cells 365W - 390 W (UL 1500V)
S-5! PV KIT 2.0 with the following roof clamps: S-5-U Mini, S-5-S Mini, S-5-T Mini, S-5-Z Mini, S-5-N Mini, S-5-U, S-5-S, S-5-T, S-5-Z, S-5-N, S-5-V, S-5-H90	Y <sup>1</sup>	Y	See Above	NRTL Listed PV Module - Q-Cell G4.4 frame models Q.PEAK DUO-G8+, Q.PEAK DUO-G8, Q.PEAK DUO-G6+, Q.PEAK DUO-G6 (330-345) Q.PEAK DUO BLK-G8+, Q.PEAK DUO BLK-G8, Q.PEAK DUO BLK-G6+, Q.PEAK DUO BLK-G6 (320-335) Q.PEAK DUO-G7, Q.PEAK DUO G7.2 (325-335) Q.PEAK DUO BLK-G7, Q.PEAK DUO BLK-G5 (305-320) Q.PLUS DUO-G5 (300-315) Q.PEAK DUO-G5 (305-330) Q.PEAK-G4.1, Q.PEAK BLK G4.1 (290-305) Q.PEAK-G4.1/TAA (300-305) Q.PEAK BLK G4.1/TAA (290-300)

S-5! PV KIT 2.0 with the following roof clamps: S-5-U Mini, S-5-S Mini, S-5-T Mini, S-5-Z Mini, S-5-N Mini, S-5-U, S-5-S, S-5-T, S-5-Z, S-5-N, S-5-V, S-5-H90	Y <sup>1</sup>	Y	See Above	NRTL Listed PV Module - Q-Cell G4.4L frame models Q.PEAK DUO L-G8.3, Q.PEAK DUO L-G8.2 (405-430) Q.PEAK DUO L-G8.1, Q.PEAK DUO L-G8 (415-430) Q.PEAK DUO L-G7.3, Q.PEAK DUO L-G7.2, Q.PEAK DUO L-G7.1, Q.PEAK DUO L-G7 (385-405) Q.PEAK DUO L-G5.3/BF (380-400) Q.PEAK DUO L-G6, Q.PEAK DUO L-G6.3 (400-415) Q.PEAK DUO L-G6.2 (400-425) Q.PLUS DUO L-G5, Q.PLUS DUO L-G5.1, Q.PLUS DUO L-G5.2, Q.PLUS DUO L-G5.3 (360-375) Q.PEAK DUO L-G5.2, Q.PEAK DUO L-G5.3 (380-395) Q.PEAK L G4.2, Q.PEAK L G4.1 (365,370) Q.PLUS L G4.2 (325-355) Q.PLUS L G4.1 (330-340) Q.PLUS L G4 (320-340)
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<sup>1</sup> Bonding has been evaluated between modules. Bonding has not been evaluated between the S-5! PV KIT and the metal roof.

<sup>2</sup> The clamps above were secured to the following metal (steel) roof type during the mechanical load test.

S-5-U Mini:

Metal thickness = 0.028 inches (0.7 mm),

Seam Width = 0.625 inches (1.6 cm),

Seam Height = 1.75 inches (44.5 cm),

3 inch Trap single fold, 24 Gauge steel,

3 inch trap double fold, 24 Gauge steel,

2 inch single fold, 24 Gauge steel,

2 inch double fold, 24 Gauge steel

S-5-Z Mini:

2-1/2 inch bulb, 24 Gauge steel

S-5-S Mini:

1-3/4 inch snap-lock, 24 Gauge steel

S-5-T Mini:

2-3/4 inch T panel, 24 Gauge steel

S-5-N Mini:

1 inch nail strip, 24 Gauge steel

S-5-E Mini:

1/4 inch wide x 3/4 inch high Double folded seam, 24 Gauge steel

\*Evaluated for use on existing non-combustible roofs.

Trademark and/or Tradename: "S-5!", "S-5",



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