Amendment to "User Manual"
with Additional Mounting Options for Trina Solar PV Modules

This document is intended to add mounting options in addition to the already existing and described methods within the Trina Solar User Manuals.

In order to achieve the best use of installation of systems, mounting system shall be designed or selected according to project requirements. Fixation (including bolts, clamps, hooks, etc.) used in a system shall not be failure (malfunctioned to cause loose or any other issues which may damage the PV modules) in any circumstance. Trina solar recommends a minimum clamp length of 40mm for aluminum clamp and 50mm for high-strength steel metal clamp.

Option 1: Short side clamping with 4 clamps and rail underneath the module short side

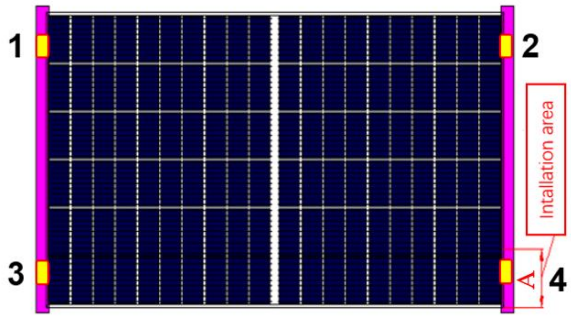
Graphic view	Description
	Clamp position can be within the range 0 – xxx mm (clamping range refers to Table 1) for all 4 clamps attached to the module short side; clamping range can be asymmetrical, clamp 1 & 2 can have a different position from the module edge compared to clamp 3 & 4.
Legend	
	Solid mounting rail under the module which fully supports the module frame from underneath and is also used to fix the clamps into.
	Module clamp which has to fulfill Trina's minimum requirements in terms of grip length and grip depth.

Table 1: Maximum mechanical test loads and clamping ranges for option 1.

Product Code	Maximum Test Load (Front side +)	Maximum Test Load (Back side -)	Clamping range (A)
DE09 DE09.08 DE09.05	2400Pa with aluminum clamp ≥ 40mm 2400Pa with steel clamp ≥ 50mm	1600Pa with aluminum clamp ≥40mm 2000Pa with steel clamp ≥ 50mm	0 – 200mm
DE08M(II) DE08M.08(II)	2000Pa	1800Pa	0 – 200mm
DEG8MC.20(II)	1800Pa	1600Pa	0 – 200mm
DE06M.08(II) DE06M(II) DD06M.05(II)	2000Pa	1800Pa	0 – 200mm
DE15M(II)	1600Pa	1000Pa	0 – 200mm

DEG15MC.20(II) PEG15H.20	1600Pa	1000Pa	0 – 200mm
DE17M(II)	1600Pa	1000Pa	0 – 200mm
DEG17MC.20(II)	1600Pa	1000Pa	0 – 200mm
DE18M(II)	1200Pa with aluminum clamp ≥60mm	1000Pa with aluminum clamp ≥60mm	0 – 200mm
DEG18MC.20(II)	1300Pa with aluminum clamp ≥60mm	1000Pa with aluminum clamp ≥60mm	0 – 200mm

Option 2: Short side slide-in/insertion

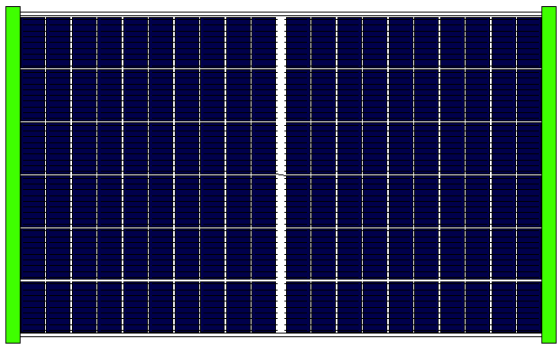
Graphic view	**Description**
	Module short sides are inserted into slide-in rails completely.
Legend	
	Solid mounting rail supporting the module frame from underneath and from the top (C-shape type of rail) in which the module frame is held, no clamp needed.

Table 2: Maximum mechanical test loads for option 2.

Product Code	**Maximum Test Load (Front side +)**	**Maximum Test Load (Back side -)**
DE09 DE09.08 DE09.05	2400Pa	2000Pa
DE08M(II) DE08M.08(II)	2000Pa	1800Pa
DEG8MC.20(II)	1800Pa	1600Pa
DE06M.08(II) DE06M(II) DD06M.05(II)	2000Pa	1800Pa
DE15M(II)	1000Pa	1000Pa
DEG15MC.20(II) PEG15H.20	1000 Pa	1000Pa
DE17M(II)	1000Pa	1000Pa
DEG17MC.20(II)	1000Pa	1000Pa
DE18M(II)	1000Pa with aluminum clamp ≥60mm	1000Pa with aluminum clamp ≥60mm
DEG18MC.20(II)	1000Pa with aluminum clamp ≥60mm	1000Pa with aluminum clamp ≥60mm

Option 3: Short side clamping with 4 clamps AND only punctual support underneath module frame

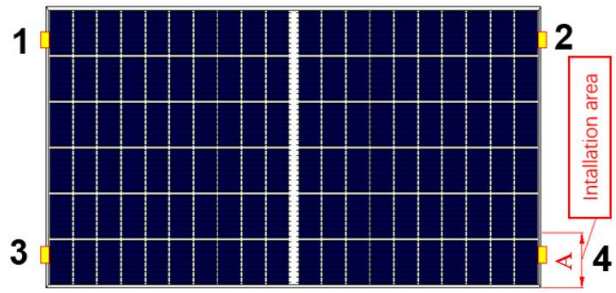
Graphic view	Description
	Clamp position can be within the range 0 – xxx mm (clamping range refers to Table 3) for all 4 clamps attached to the module short side, clamping range can be asymmetrical, clamp 1&2 can have a different position form the module edge compared to clamp 3 & 4.
Legend	
	Module clamp which has to fulfill Trina's minimum requirements in terms of grip length and grip depth.

Table 3: Maximum mechanical test loads and clamping ranges for option 3.

Product Code	Maximum Test Load (Front side +)	Maximum Test Load (Back side -)	Clamping range (A)
DE09 DE09.08 DE09.05	2000Pa with aluminum clamp ≥ 40mm 2400Pa with steel clamp ≥50mm	1600Pa with aluminum clamp ≥40mm 1800Pa with steel clamp ≥50mm	0 – 200mm
DE08M(II) DE08M.08(II)	1800Pa	1800Pa	0 – 200mm
DEG8MC.20(II)	1600Pa	1600Pa	0 – 200mm
DE06M.08(II) DE06M(II) DD06M.05(II)	1800Pa	1800Pa	0 – 200mm
DE15M(II)	1600Pa	1000Pa	0 – 200mm
DEG15MC.20(II) PEG15H.20	1600Pa	1000Pa	0 – 200mm
DE17M(II)	1600Pa	1000Pa	0 – 200mm
DEG17MC.20(II)	1600Pa	1000Pa	0 – 200mm
DE18M	1200Pa with aluminum clamp ≥60mm	1000Pa with aluminum clamp ≥60mm	0 – 200mm
DEG18MC.20	1300Pa with aluminum clamp ≥60mm	1000Pa with aluminum clamp ≥60mm	0 – 200mm

Option 4: Long side clamping AND only punctual support underneath module frame

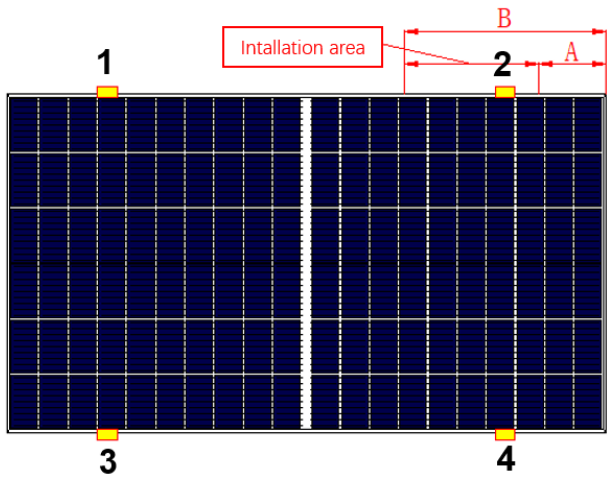
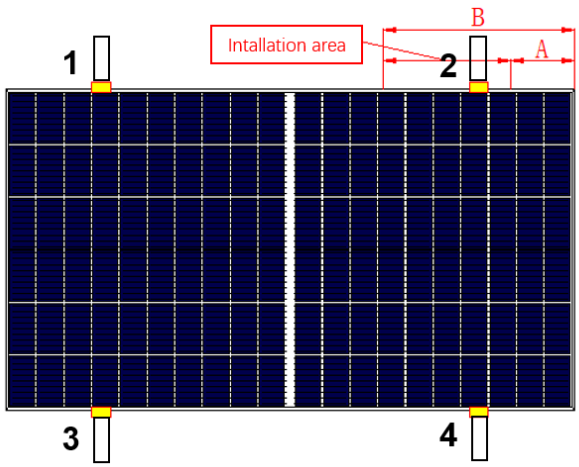
Graphic view	Description
	Clamp position can be within the range xxx – xxx mm (clamping range refers to Table 4) for all 4 clamps attached to the module long side; the clamps 1 & 3 can have a different distance to the edge than the clamps 2 & 4 (asymmetrical clamping).
Legend	
	Module clamp which has to fulfill Trina's minimum requirements in terms of grip length and grip depth.

Table 4: Maximum mechanical test loads and clamping ranges for option 4.

Product Code	Maximum Test Load (Front side +)	Maximum Test Load (Back side -)	Clamping range	
			A	B
DE09 DE09.08 DE09.05	2400Pa with steel clamp ≥50mm	2000Pa with steel clamp ≥50mm	100	600
DE09 DE09.08 DE09.05	3600Pa with steel clamp ≥50mm	3000Pa with steel clamp ≥50mm	200	500
DE08M(II) DE08M.08(II)	1800Pa	1800Pa	100	600
DEG8MC.20(II)	1800Pa	1800Pa	100	600
DE06M.08(II) DE06M(II) DD06M.05(II)	1800Pa	1800Pa	100	600
DE15M(II)	1800Pa	1800Pa	200	600
DEG15MC.20(II)	1800Pa	1800Pa	200	600
DE17M(II)	1800Pa	1800Pa	200	600
DEG17MC.20(II)	1800Pa	1800Pa	200	600
DE18M(II)	1700Pa with aluminum clamp ≥60mm	1700Pa with aluminum clamp ≥60mm	200	600
DEG18MC.20(II)	1700Pa with aluminum clamp ≥60mm	1700Pa with aluminum clamp ≥60mm	200	600

Option 5: Long side 4 points clamping with crossbeam

Graphic view	Description
	Clamp position can be within the range xxx – xxx mm (clamping range refers to Table 5) for all 4 clamps attached to the module long side; the clamps 1 & 3 can have a different distance to the edge than the clamps 2 & 4 (asymmetrical clamping).

Legend	
	Module clamp, which has to fulfill Trina's minimum requirements in terms of grip length and grip depth. Higher load as per Installation Manual.

Table 5: Maximum mechanical test loads and clamping ranges for option 5.

Product Code	Maximum Test Load (Front side +)	Maximum Test Load (Back side -)	Clamping range	
			A	B
DD08M.08 DE08M(II) DE08M.08(II)	1800Pa	1800Pa	100	600
DD08M.08 DE08M(II) DE08M.08(II)	2000Pa	2000Pa	200	500
DE09 DE09.08 DE09.05	2400Pa with steel clamp ≥50mm	2000Pa with steel clamp ≥50mm	100	600
DE09 DE09.08 DE09.05	3600Pa with steel clamp ≥50mm	3000Pa with steel clamp ≥50mm	200	500

Option 6: Four long side clamps (1-4) AND only punctual support underneath module frame + 2 additional support punctual support points (5 & 6) with/without clamps

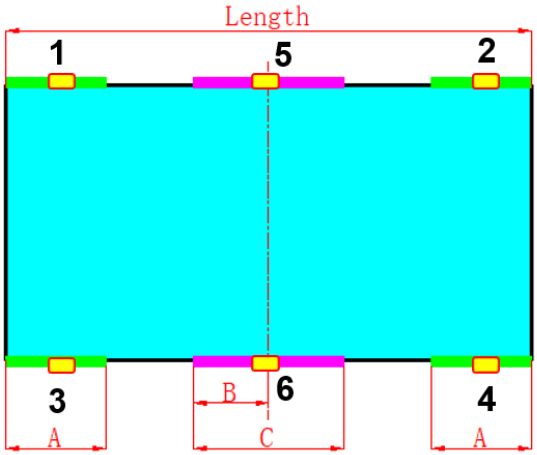
Graphic view	Description
	Clamp position can be within the range xxx – xxx mm (clamping range refers to Table 6) for all 4 clamps attached to the module long side; the clamps 1 & 3 can have a different distance to the edge than the clamps 2 & 4 (asymmetrical clamping); the support points 5 & 6 use with clamps.
Legend	
	Module clamp, which has to fulfill Trina's minimum requirements in terms of grip length and grip depth. Higher load as per Installation Manual.

Table 6: Maximum mechanical test loads and clamping ranges for option 6.

Product Code	Maximum Test Load (Front side +)	Maximum Test Load (Back side -)	Clamping range		
			A	B	C
DE09 DE09.08 DE09.05	3600Pa with steel clamp ≥50mm	2400Pa with steel clamp ≥50mm	0-200	0-300	600
DE09 DE09.08 DE09.05	2400Pa with aluminum clamp ≥40mm	2000Pa with aluminum clamp ≥40mm	0-200	0-300	600

NOTE:

- The support points 5 & 6 can also use without clamps, if so, the maximum test load (back side -) will be 1800Pa for steel clamp ≥ 50mm, and 1600Pa for aluminum clamp ≥ 40mm.

Option 7: Short side clamping with 4 clamps AND only punctual support underneath module frame + 2 additional long side support points with only punctual support underneath module frame in combination with or without a clamp

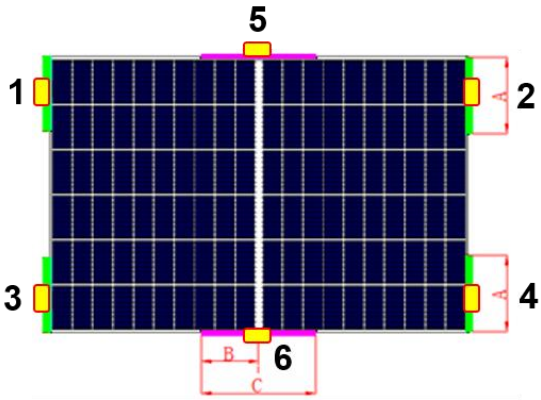
Graphic view	Description
	Clamp position can be within the range 0 – xxx mm (clamping range refers to Table 7) for all 4 clamps attached to the module short side, clamping range can be asymmetrical, clamp 1&2 can have a different position form the module edge compared to clamp 3 & 4; the support points 5 & 6 use with clamps.
Legend	
	Module clamp, which has to fulfill Trina's minimum requirements in terms of grip length and grip depth.

Table 7: Maximum mechanical test loads and clamping ranges for option 7.

Product Code	Maximum Test Load (Front side +)	Maximum Test Load (Back side -)	Clamping range		
			A	B	C
DE09 DE09.08 DE09.05	3000Pa with steel clamp ≥50mm	2400Pa with steel clamp ≥50mm	0-200	0-300	600
DE09 DE09.08 DE09.05	2400Pa with aluminum clamp ≥40mm	2000Pa with aluminum clamp ≥40mm	0-200	0-300	600
DE08M(II) DE08M.08(II)	2000Pa with aluminum clamp ≥40mm	2000Pa with aluminum clamp ≥40mm	0-200	0-300	600
DEG8MC.20(II)	1800Pa with aluminum clamp ≥40mm	1800Pa with aluminum clamp ≥40mm	0-200	0-300	600

NOTE:

- DE09 / DE09.08 / DE09.05: the support points 5 & 6 can also use without clamps, if so, the maximum test load (back side -) will be 1800Pa for steel clamp ≥ 50mm, and 1600 Pa for aluminum clamp ≥ 50mm.
- DE08M(II) / DE08M.08(II): the support points 5 & 6 can also use without clamps, if so, the maximum test load (back side -) will be 1800Pa for aluminum clamp ≥ 40mm.
- DEG8MC.20(II): the support points 5 & 6 can also use without clamps, if so, the maximum test load (back side -) will be 1600Pa for aluminum clamp ≥ 40mm.

Option 8: Hybrid clamping with clamps on long and short side and solid rails supporting from underneath

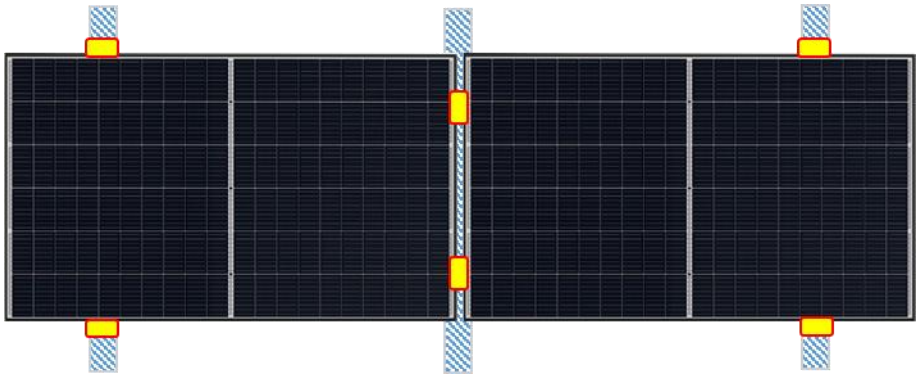
Graphic view	
	
Legend	
	Solid mounting rail under the module which fully supports the module frame from underneath and is also used to fix the clamps into.
	Module clamp, which has to fulfill Trina's minimum requirements in terms of grip length and grip depth.

Table 8: Maximum mechanical test loads and clamping ranges for option 8.

Product Code	Maximum Test Load (Front side +)	Maximum Test Load (Back side -)	Clamping range	
			short side	long side
DE09 DE09.08 DE09.05	2000Pa with aluminum clamp ≥ 40mm 2400Pa with steel clamp ≥ 50mm	1600Pa with aluminum clamp ≥ 40mm 1800Pa with steel clamp ≥ 50mm	100-250	250-450
DE08M(II) DE08M.08(II)	1800Pa	1800Pa	100-250	250-450
DE17M(II)	1600Pa	1000Pa	100-250	250-450
DEG17MC.20(II)	1600Pa	1000Pa	100-250	250-450
DE18M(II)	1200Pa with aluminum clamp ≥60mm	1000Pa with aluminum clamp ≥60mm	100-250	250-450
DEG18MC.20(II)	1300Pa with aluminum clamp ≥60mm	1000Pa with aluminum clamp ≥60mm	100-250	250-450

Option 9: Four clamping hooks which are clamping the module flange from underneath on the long side of the module

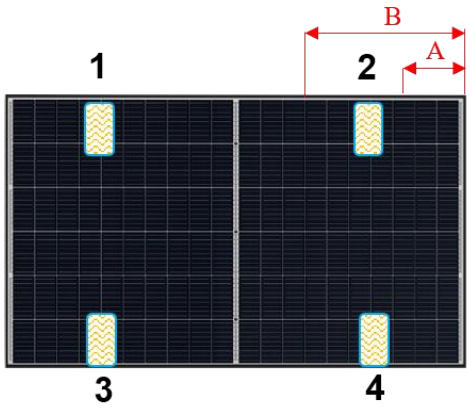
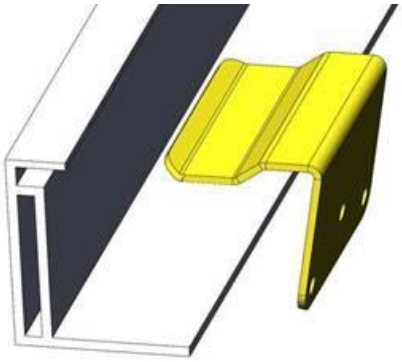
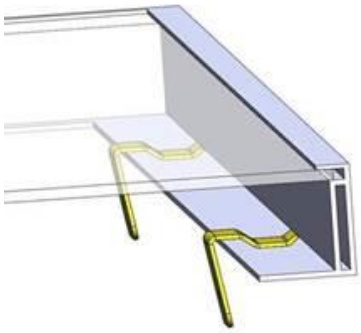
Graphic view	Description
	Four hooks underneath the module are clamping the flange of the long side frame, the module frame is punctually supported from underneath. The clamp position can be within the 0 – xxx mm (clamping range refers to Table 9) for all 4 clamps attached to the module. The clamps 1 & 3 can have a different distance to the edge than the clamps 2 & 4 (asymmetrical clamping).
	
Legend	
	Module hooks

Table 9: Maximum mechanical test loads and clamping ranges for option 9.

Product Code	Maximum Test Load (Front side +)	Maximum Test Load (Back side -)	Clamping range	
			A	B
DE09 DE09.08 DE09.05	2400Pa	2000Pa	100	600
DE08M(II) DE08M.08(II)	1800Pa	1800Pa	100	600
DE17M(II)	1800Pa	1800Pa	200	600
DEG17MC.20(II)	1800Pa	1800Pa	200	600
DE18M(II)	1700Pa with aluminum clamp ≥60mm	1700Pa with aluminum clamp ≥60mm	200	600
DEG18MC.20(II)	1700Pa with aluminum clamp ≥60mm	1700Pa with aluminum clamp ≥60mm	200	600