

Our Ref: 23716

8 February 2013

Clenergy Australia
18/20 Duerdin Street
Clayton North VIC 3168

Clenergy Klip-Lok Type Clamp PV Mounting System for use within Australia

Gamcorp (Melbourne) Pty Ltd, being Structural Engineers within the meaning of Australian Building Regulations, have carried out a structural design check of Clenergy Klip-Lok Type Clamp PV Mounting System for use in Australia. The design check has been based on the information by Clenergy Australia, and Uplift Load Testing Report (MT-11/023) by Melbourne Testing Services and PV-ezRack SolarRoof_Klip_LoK_Code Ckmpliant Instalttion and spacing Guide-AV_V2.1.

We find the Clenergy Klip-Lok Type Clamp PV Mounting System to be structurally sufficient for use at this location based on the following conditions:

- Wind Loads to AS/NZ1170.2:2011 amdt 2-2012
- Wind Terrain Category 2,3
- Wind average recurrence interval of 50 years
- Wind Region A, B, C
- Building Height up to 20m
- Max. Solar Panel length 1.58 m (for larger panel, refer to the notes on the bottom of the tables)

Refer to attached summary table for interface Spacing.

Construction is to be carried out strictly in accordance with the manufacturers instructions. This work was designed in accordance with the provisions of Australian Building Regulations and in accordance with sound, widely accepted engineering principles.

Yours faithfully,
Gamcorp (Melbourne) Pty Ltd

A handwritten signature in blue ink, appearing to read 'Martin Gamble'.

Martin Gamble
Managing Director
MAICD

A handwritten signature in blue ink, appearing to read 'Milan Bjelobrk'.

Milan Bjelobrk
MIEAust, CPEng, NPER 2210984,
RPEQ 12090, RBP EC-38461, NT BPB 139671ES

Structural Design Summary Table

KLIP-LOK TYPE CLAMP ACCREDITATION
For
PV-ezRack Single Tripod, Adjustable tilting system
Double Tripod and Flush mount system
In accordance with AS/NZ 1170.2 2011 Amdt 2-2012

Terrain Category 2

For:

Clenergy Australia
18/20 Duerdin St
Clayton VIC 3168

Job Number: 23716
Date: February 8, 2013

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SUMMARY SHEET NO. 1

T.C. 2 for Regions A, B, C

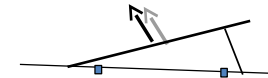
Roof Interface Bracket Spacing (mm) Across for PV – ezRack Single Tripod and Adjustable Tilting System

Roof Interface Bracket Spacing (mm) Across for PV – ezRack Single Solar Tripod - ER-I-09 fixing anywhere on the Roofing sheet
Two Klip-Lok per frame

WIND REGION	A								B							
	0.68	0.84	0.82	0.92	0.91	1.11	0.96	1.18	0.87	1.15	1.05	1.38	1.15	1.52	1.22	1.61
	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	670	540	550	490	500	410	380	310	520	390	430	330	390	300	370	280
KlipLok 700	1460	1190	1210	1080	1090	890	830	680	1140	860	940	720	860	650	810	610
KingKlip 700	720	580	600	530	540	440	410	330	560	420	460	350	420	320	400	300
Stramit SDU	1220	1000	1010	900	910	750	690	570	960	720	790	600	720	540	680	510
Force (kN/m)	0.59	0.73	0.72	0.80	0.80	0.97	1.04	1.28	0.76	1.00	0.92	1.21	1.00	1.33	1.07	1.41

WIND REGION	C							
	1.33	2.29	1.61	2.54	1.77	2.79	1.88	2.95
	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	340	200	280	180	250	160	240	150
KlipLok 700	740	430	610	390	560	350	520	330
KingKlip 700	370	210	300	190	270	170	260	160
Stramit SDU	620	360	510	320	470	290	440	280
Force (kN/m)	1.16	2.00	1.41	2.21	1.55	2.44	1.64	2.58

KlipLok Type	Capacity kN
Lysaght 406	0.4
Lysaght 700	0.87
Fielders 700	0.43
Stramit SDU	0.73



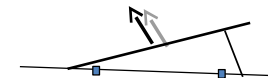
qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

Roof Interface Bracket Spacing (mm) Across for PV – ezRack Single Tripod and Adjustable Tilting System
Roof Interface Bracket Spacing (mm) Across for PV – ezRack Single Solar Tripod - ER-I-09 fixing on purlin on the Roofing sheet
Two Klip-Lok per frame

WIND REGION	A								B							
	0.68	0.84	0.82	0.92	0.91	1.11	0.96	1.18	0.87	1.15	1.05	1.38	1.15	1.52	1.22	1.61
	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1491	1427	1433	1398	1401	1341	1310	1070	1415	1332	1358	1130	1331	1020	1280	970
KlipLok 700	1491	1427	1433	1398	1401	1200	1120	910	1415	1160	1270	960	1160	870	1090	830
KingKlip 700	840	680	690	620	620	510	470	390	650	490	540	410	490	370	460	350
Stramit SDU	1491	1427	1433	1398	1401	1341	1385	1324	1415	1332	1358	1277	1331	1249	1313	1232
Force (kN/m)	0.59	0.73	0.72	0.80	0.80	0.97	1.04	1.28	0.76	1.00	0.92	1.21	1.00	1.33	1.07	1.41

WIND REGION	C							
	1.33	2.29	1.61	2.54	1.77	2.79	1.88	2.95
	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1170	680	970	610	880	560	560	530
KlipLok 700	1000	580	830	520	750	470	710	450
KingKlip 700	430	250	350	220	320	200	300	190
Stramit SDU	1288	900	1233	810	1160	730	1090	690
Force (kN/m)	1.16	2.00	1.41	2.21	1.55	2.44	1.64	2.58

KlipLok Type	Capacity kN
Lysaght 406	1.37
Lysaght 700	1.17
Fielders 700	0.5
Stramit SDU	1.8



qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

SUMMARY SHEET NO. 2

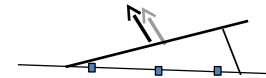
T.C. 2 for Regions A, B, C

**Roof Interface Bracket Spacing (mm) Across for PV – ezRack Single Tripod -ER-I-09 fixing anywhere on the Roofing sheet
Three Klip-Lok per frame**

WIND REGION	A								B							
qu (K Pa)	0.68	0.84	0.82	0.92	0.91	1.11	0.96	1.18	0.87	1.15	1.05	1.38	1.15	1.52	1.22	1.61
hz	5.0 m		10.0 m		15.0 m		40.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	990	800	820	730	740	600	560	460	770	580	640	480	580	440	550	410
KlipLok 700	1491	1427	1433	1398	1401	1320	1220	1000	1415	1280	1358	1060	1270	960	1200	910
KingKlip 700	1060	860	880	780	790	650	600	490	830	630	690	520	630	470	590	450
Stramit SDU	1491	1427	1433	1330	1350	1100	1030	840	1410	1070	1170	890	1070	800	1000	760
Force (kN/m)	0.40	0.49	0.49	0.55	0.54	0.66	0.71	0.87	0.52	0.68	0.62	0.82	0.68	0.90	0.72	0.96

WIND REGION	C							
qu (Kpa)	1.33	2.29	1.61	2.54	1.77	2.79	1.88	2.95
hz	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	500	290	410	260	380	240	350	220
KlipLok 700	1100	640	910	570	820	520	780	490
KingKlip 700	540	310	450	280	410	250	380	240
Stramit SDU	920	530	760	480	690	440	650	410
Force (kN/m)	0.79	1.36	0.95	1.50	1.05	1.66	1.11	1.75

KlipLok Type	Capacity kN
Lysaght 406	0.4
Lysaght 700	0.87
Fielders 700	0.43
Stramit SDU	0.73



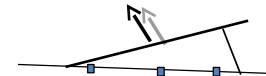
qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

**Roof Interface Bracket Spacing (mm) Across for PV – ezRack Single Tripod - ER-I-09 fixing on purlin on the Roofing sheet
Three Klip-Lok per frame**

WIND REGION	A								B							
qu (K Pa)	0.68	0.84	0.82	0.92	0.91	1.11	0.96	1.18	0.87	1.15	1.05	1.38	1.15	1.52	1.22	1.61
hz	5.0 m		10.0 m		15.0 m		40.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1491	1427	1433	1398	1401	1341	1385	1324	1415	1332	1358	1277	1331	1249	1313	1232
KlipLok 700	1491	1427	1433	1398	1401	1341	1385	1324	1415	1332	1358	1277	1331	1249	1313	1220
KingKlip 700	1240	1010	1020	910	920	750	700	570	960	730	800	610	730	550	690	520
Stramit SDU	1491	1427	1433	1398	1401	1341	1385	1324	1415	1332	1358	1277	1331	1249	1313	1232
Force (kN/m)	0.40	0.49	0.49	0.55	0.54	0.66	0.71	0.87	0.52	0.68	0.62	0.82	0.68	0.90	0.72	0.96

WIND REGION	C							
qu (Kpa)	1.33	2.29	1.61	2.54	1.77	2.79	1.88	2.95
hz	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1288	1010	1233	910	1206	820	1189	780
KlipLok 700	1288	860	1220	770	1110	700	1050	660
KingKlip 700	630	360	520	330	470	300	440	280
Stramit SDU	1288	1136	1233	1108	1206	1080	1189	1020
Force (kN/m)	0.79	1.36	0.95	1.50	1.05	1.66	1.11	1.75

KlipLok Type	Capacity kN
Lysaght 406	1.37
Lysaght 700	1.17
Fielders 700	0.5
Stramit SDU	1.8



qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

General Notes

- Roof Interface bracket spacing in the above table for panel length of 1.58 m. Roof Interface bracket spacing will be reduced by, 6% for solar panel length upto 1.7m 11.5% for solar panel length upto 1.8m 21% for solar panel length upto 2.0m
- The table prepared based on ER-R-ST Rail capacity and Klip-Lok bracket pull-out capacity.
- This tables refer to using Klip-Lok type interface (ER-I-09) with Adjustable Tilt Leg using 2-M8 bolts for the connection and also with single Tripod using 2-M8 bolts for connection.
- Max. distance allowed from the end of the single Tripod base to fixing of the Klip-lok bracket is 225 mm.
- The above mentioned spacing table is for Roof Interface Bracket fixing including edge of the roof.
- "On purlin" means that distance from the purlin to the Klip-Lok type bracket(centre to centre) is not more than 100mm.
- Angle refers to tilt angle between roof and panels – not to horizontal.
- Spacing applies to roofs with pitch <= 10 degrees

SUMMARY SHEET NO. 3

T.C. 2 for Regions A, B, C

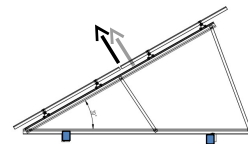
Roof Interface Bracket Spacing (mm) Across for PV – ezRack Double Tripod -ER-I-09 fixing anywhere on the Roofing sheet

Two Klip-Lok per frame

WIND REGION	A								B							
	0.68	0.84	0.82	0.92	0.91	1.11	0.96	1.18	0.87	1.15	1.05	1.38	1.15	1.52	1.22	1.61
	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
qu (K Pa)	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30
Angle	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30
KlipLok 406	310	250	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
KlipLok 700	670	550	560	500	500	410	470	390	520	400	430	330	400	300	370	280
KingKlip 700	330	270	270	240	240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stramit SDU	560	460	470	410	420	340	400	320	440	330	360	270	330	250	310	N/A
Force (kN/m)	1.29	1.58	1.55	1.74	1.72	2.10	1.82	2.22	1.65	2.17	1.99	2.61	2.17	2.88	2.31	3.05

WIND REGION	C							
	1.33	2.29	1.61	2.54	1.77	2.79	1.88	2.95
	5.0 m		10.0 m		15.0 m		20.0 m	
qu (Kpa)	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30
Angle	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30
KlipLok 406	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
KlipLok 700	340	200	280	180	250	160	240	N/A
KingKlip 700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stramit SDU	290	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Force (kN/m)	2.52	4.33	3.04	4.79	3.35	5.28	3.56	5.58

KlipLok Type	Capacity
Lysaght 406	0.4
Lysaght 700	0.87
Fielders 700	0.43
Stramit SDU	0.73



qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

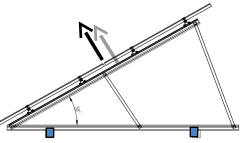
Roof Interface Bracket Spacing (mm) Across for PV – ezRack Double Tripod - ER-I-09 fixing on purlin on the Roofing sheet

Two Klip-Lok per frame

WIND REGION	A								B							
	0.68	0.84	0.82	0.92	0.91	1.11	0.96	1.18	0.87	1.15	1.05	1.38	1.15	1.52	1.22	1.61
	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
qu (K Pa)	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30
Angle	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30
KlipLok 406	1060	860	880	780	790	650	750	610	830	630	680	520	620	470	590	440
KlipLok 700	900	740	750	670	670	550	640	520	710	540	580	440	530	400	500	380
KingKlip 700	380	310	320	280	290	N/A	270	N/A	300	230	250	N/A	N/A	N/A	N/A	N/A
Stramit SDU	1390	1130	1160	1030	1040	850	990	800	1090	830	900	680	820	620	780	590
Force (kN/m)	1.29	1.58	1.55	1.74	1.72	2.10	1.82	2.22	1.65	2.17	1.99	2.61	2.17	2.88	2.31	3.05

WIND REGION	C							
	1.33	2.29	1.61	2.54	1.77	2.79	1.88	2.95
	5.0 m		10.0 m		15.0 m		20.0 m	
qu (Kpa)	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30
Angle	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30	≤ 15	≤30
KlipLok 406	540	310	440	280	400	250	380	240
KlipLok 700	460	270	380	240	340	N/A	320	N/A
KingKlip 700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stramit SDU	710	410	590	370	530	340	500	320
Force (kN/m)	2.52	4.33	3.04	4.79	3.35	5.28	3.56	5.58

KlipLok Type	Capacity
Lysaght 406	1.37
Lysaght 700	1.17
Fielders 700	0.5
Stramit SDU	1.8



qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

SUMMARY SHEET NO. 4

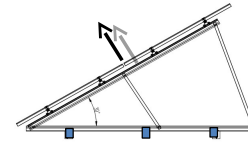
T.C. 2 for Regions A, B, C

**Roof Interface Bracket Spacing (mm) Across for PV – ezRack Double Tripod - ER-I-09 fixing anywhere on the Roofing sheet
Three Klip-Lok per frame**

WIND REGION	A								B							
	0.68	0.84	0.82	0.92	0.91	1.11	0.96	1.18	0.87	1.15	1.05	1.38	1.15	1.52	1.22	1.61
qu (K Pa)	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
hz	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	450	370	380	330	340	280	320	260	350	270	290	N/A	270	N/A	250	N/A
KlipLok 700	990	810	820	730	740	610	700	570	770	590	640	490	580	440	550	420
KingKlip 700	490	400	400	360	360	300	340	280	380	290	310	240	290	N/A	270	N/A
Stramit SDU	830	680	690	610	620	510	590	480	650	490	540	410	490	370	460	350
Force (kN/m)	0.87	1.07	1.05	1.18	1.17	1.43	1.23	1.51	1.12	1.47	1.35	1.77	1.47	1.95	1.56	2.07

WIND REGION	C							
	1.33	2.29	1.61	2.54	1.77	2.79	1.88	2.95
qu (Kpa)	5.0 m		10.0 m		15.0 m		20.0 m	
hz	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
KlipLok 700	510	290	420	260	380	240	360	N/A
KingKlip 700	250	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stramit SDU	420	240	350	N/A	320	N/A	300	N/A
Force (kN/m)	1.71	2.93	2.06	3.25	2.27	3.58	2.41	3.78

KlipLok Type	Capacity kN
Lysaght 406	0.4
Lysaght 700	0.87
Fielders 700	0.43
Stramit SDU	0.73



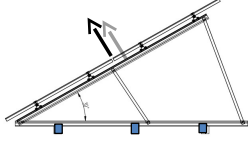
qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

**Roof Interface Bracket Spacing (mm) Across for PV – ezRack Double Tripod - ER-I-09 fixing on purlin on the Roofing sheet
Three Klip-Lok per frame**

WIND REGION	A								B							
	0.68	0.84	0.82	0.92	0.91	1.11	0.96	1.18	0.87	1.15	1.05	1.38	1.15	1.52	1.22	1.61
qu (K Pa)	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
hz	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1491	1270	1300	1160	1170	960	1110	900	1220	930	1010	770	920	700	870	660
KlipLok 700	1340	1090	1110	990	1000	820	950	770	1040	790	860	660	790	590	740	560
KingKlip 700	570	460	470	420	420	350	400	330	440	340	370	280	330	250	310	240
Stramit SDU	1491	1427	1433	1398	1401	1260	1385	1190	1400	1220	1330	1010	1220	920	1150	870
Force (kN/m)	0.87	1.07	1.05	1.18	1.17	1.43	1.23	1.51	1.12	1.47	1.35	1.77	1.47	1.95	1.56	2.07

WIND REGION	C							
	1.33	2.29	1.61	2.54	1.77	2.79	1.88	2.95
qu (Kpa)	5.0 m		10.0 m		15.0 m		20.0 m	
hz	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	800	460	660	420	600	380	560	360
KlipLok 700	680	390	560	350	510	320	480	300
KingKlip 700	290	N/A	240	N/A	N/A	N/A	N/A	N/A
Stramit SDU	1000	610	870	550	790	500	740	470
Force (kN/m)	1.71	2.93	2.06	3.25	2.27	3.58	2.41	3.78

KlipLok Type	Capacity kN
Lysaght 406	1.37
Lysaght 700	1.17
Fielders 700	0.5
Stramit SDU	1.8



qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

General Notes

- 1 Roof Interface bracket spacing in the above table for panel length of 1.58 m. Roof Interface bracket spacing will be reduced by, 6% for solar panel length upto 1.7m 11.5% for solar panel length upto 1.8m 21% for solar panel length upto 2.0m
- 2 The table prepared based on ER-R-ST Rail capacity and Klip-Lok bracket pull-out capacity.
- 3 This tables refer to using Klip-Lok type interface (ER-I-09) with Double Tripod using 2-M8 bolts for connection.
- 4 Max. distance allowed from the end of the Double Tripod base to fixing of the Klip-lok bracket is 500 mm.
- 5 The above mentioned spacing table is for Roof Interface Bracket fixing including edge of the roof.
- 6 "On purlin" means that distance from the purlin to the Klip-Lok type bracket(centre to centre) is not more than 100mm.
- 7 Angle refers to tilt angle between roof and panels – not to horizontal.
- 8 Spacing applies to roofs with pitch <= 10 degrees

SUMMARY SHEET NO. 5

T.C. 2 for Regions A, B, C

Direct Mounting of the panels or using L-feet (ER-I-05) with two rails per panel

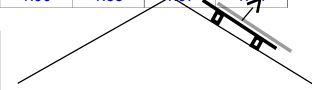
Roof Interface Bracket Spacing (mm) Across for PV – ezRack single Panel - ER-I-09 fixing anywhere on the Roofing sheet

WIND REGION	A								B							
	0.68	0.84	0.82	0.92	0.91	1.11	0.96	1.18	0.87	1.15	1.05	1.38	1.15	1.52	1.22	1.61
	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
qu (K Pa)	0.68	0.84	0.82	0.92	0.91	1.11	0.96	1.18	0.87	1.15	1.05	1.38	1.15	1.52	1.22	1.61
hz	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	670	540	550	490	500	410	470	380	520	390	430	330	390	300	370	280
KlipLok 700	1460	1190	1210	1080	1090	890	1030	840	1140	860	940	720	860	650	810	610
KingKlip 700	720	580	600	530	540	440	510	410	560	420	460	350	420	320	400	300
Stramit SDU	1220	1000	1010	900	910	750	870	710	960	720	790	600	720	540	680	510
Force (kN/m)	0.59	0.73	0.72	0.80	0.80	0.97	0.84	1.03	0.76	1.00	0.92	1.21	1.00	1.33	1.07	1.41

WIND REGION	C							
	1.33	2.29	1.61	2.54	1.77	2.79	1.88	2.95
	5.0 m		10.0 m		15.0 m		20.0 m	
qu (Kpa)	1.33	2.29	1.61	2.54	1.77	2.79	1.88	2.95
hz	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	340	200	280	180	250	160	240	150
KlipLok 700	740	430	610	390	560	350	520	330
KingKlip 700	370	210	300	190	270	170	260	160
Stramit SDU	620	360	510	320	470	290	440	280
Force (kN/m)	1.16	2.00	1.41	2.21	1.55	2.44	1.64	2.58

KlipLok Type	Capacity
	kN
Lysaght 406	0.4
Lysaght 700	0.87
Fielders 700	0.43
Stramit SDU	0.73

qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok



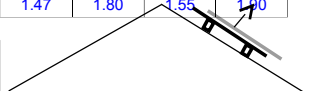
Roof Interface Bracket Spacing (mm) Across for PV – ezRack single panel - ER-I-09 fixing on purlin on the Roofing sheet

WIND REGION	A								B							
	0.77	0.97	1.11	1.36	1.22	1.50	1.29	1.59	1.11	1.39	1.52	1.87	1.68	2.06	1.77	2.18
	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
qu (K Pa)	0.77	0.97	1.11	1.36	1.22	1.50	1.29	1.59	1.11	1.39	1.52	1.87	1.68	2.06	1.77	2.18
hz	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1491	1427	1410	1150	1280	1040	1210	980	1410	1120	1030	830	930	760	880	710
KlipLok 700	1491	1380	1200	980	1090	890	1030	840	1200	960	880	710	790	650	750	610
KingKlip 700	740	580	510	420	460	380	440	350	510	410	370	300	340	270	320	260
Stramit SDU	1491	1427	1433	1398	1401	1341	1385	1290	1415	1332	1350	1100	1220	1000	1160	940
Force (kN/m)	0.67	0.85	0.97	1.19	1.07	1.31	1.13	1.39	0.97	1.21	1.33	1.63	1.47	1.80	1.55	1.90

WIND REGION	C							
	1.33	2.29	1.61	2.54	1.77	2.79	1.88	2.95
	5.0 m		10.0 m		15.0 m		20.0 m	
qu (Kpa)	1.33	2.29	1.61	2.54	1.77	2.79	1.88	2.95
hz	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1170	680	970	610	880	560	830	530
KlipLok 700	1000	580	830	520	750	470	710	450
KingKlip 700	430	250	350	220	320	200	300	190
Stramit SDU	1288	900	1233	810	1160	730	1090	690
Force (kN/m)	1.16	2.00	1.41	2.21	1.55	2.44	1.64	2.58

KlipLok Type	Capacity
	kN
Lysaght 406	1.37
Lysaght 700	1.17
Fielders 700	0.5
Stramit SDU	1.8

qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok



General Notes

- 1 Roof Interface bracket spacing in the above table for panel length of 1.58 m. Roof Interface bracket spacing will be reduced by, 6% for solar panel length upto 1.7m 11.5% for solar panel length upto 1.8m 21% for solar panel length upto 2.0m
- 2 The table prepared based on ER-R-ST Rail capacity and Klip-Lok bracket pull-out capacity.
- 3 This tables refer to using Klip-Lok type interface (ER-I-09) with single panel Flush mount using 1-M8 bolts for connection.
- 4 The above mentioned spacing table is for Roof Interface Bracket fixing including edge of the roof.
- 5 "On purlin" means that distance from the purlin to the Klip-Lok type bracket(centre to centre) is not more than 100mm.
- 6 Angle refers to roof angle

Structural Design Summary Table

KLIP-LOK TYPE CLAMP ACCREDITATION
For
PV-ezRack Single Tripod, Adjustable tilting system
Double Tripod and Flush mount system
In accordance with AS/NZ 1170.2 2011 Amdt 2-2012

Terrain Category 3

For:

Clenergy Australia
18/20 Duerdin St
Clayton VIC 3168

Job Number: 23716
Date: February 8, 2013

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SUMMARY SHEET NO. 1

T.C. 3 for Regions A, B, C

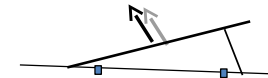
Roof Interface Bracket Spacing (mm) Across for PV – ezRack Single Tripod and Adjustable Tilting System

Roof Interface Bracket Spacing (mm) Across for PV – ezRack Single Solar Tripod - ER-I-09 fixing anywhere on the Roofing sheet
Two Klip-Lok per frame

WIND REGION	A								B							
	0.65	0.80	0.75	0.84	0.84	1.02	0.90	1.10	0.83	1.09	0.96	1.26	1.06	1.40	1.14	1.50
	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
qu (K Pa)	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
h _z	700	570	610	540	540	440	410	330	550	410	470	360	430	320	400	300
KlipLok 406	1505	1240	1330	1180	1180	970	890	720	1190	910	1040	790	940	710	870	660
KlipLok 700	750	610	650	580	580	480	440	360	590	450	510	390	460	350	430	320
KingKlip 700	1280	1040	1110	990	990	810	750	610	1000	760	870	660	780	590	730	550
Stramit SDU	0.57	0.70	0.65	0.73	0.73	0.89	0.97	1.19	0.73	0.96	0.84	1.10	0.93	1.23	0.99	1.31
Force (kN/m)																

WIND REGION	C							
	1.27	2.19	1.47	2.31	1.63	2.57	1.75	2.75
	5.0 m		10.0 m		15.0 m		20.0 m	
qu (Kpa)	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
h _z	360	200	310	190	280	170	260	160
KlipLok 406	780	450	670	430	610	380	560	360
KlipLok 700	380	220	330	210	300	190	280	170
KingKlip 700	650	380	560	360	510	320	470	300
Stramit SDU	1.11	1.91	1.28	2.02	1.42	2.25	1.53	2.40
Force (kN/m)								

KlipLok Type	Capacity kN
Lysaght 406	0.4
Lysaght 700	0.87
Fielders 700	0.43
Stramit SDU	0.73



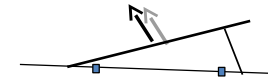
qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

Roof Interface Bracket Spacing (mm) Across for PV – ezRack Single Tripod and Adjustable Tilting System
Roof Interface Bracket Spacing (mm) Across for PV – ezRack Single Solar Tripod - ER-I-09 fixing on purlin on the Roofing sheet
Two Klip-Lok per frame

WIND REGION	A								B							
	0.65	0.80	0.75	0.84	0.84	1.02	0.90	1.10	0.83	1.09	0.96	1.26	1.06	1.40	1.14	1.50
	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
qu (K Pa)	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
h _z	1505	1442	1462	1426	1426	1365	1400	1140	1429	1346	1386	1240	1355	1110	1334	1040
KlipLok 406	1505	1442	1462	1426	1426	1300	1200	980	1429	1220	1386	1060	1260	950	1170	890
KlipLok 700	880	710	760	680	680	550	510	410	680	520	590	450	540	400	500	380
KingKlip 700	1505	1442	1462	1426	1426	1365	1406	1345	1429	1346	1386	1304	1355	1272	1334	1252
Stramit SDU	0.57	0.70	0.65	0.73	0.73	0.89	0.97	1.19	0.73	0.96	0.84	1.10	0.93	1.23	0.99	1.31
Force (kN/m)																

WIND REGION	C							
	1.27	2.19	1.47	2.31	1.63	2.57	1.75	2.75
	5.0 m		10.0 m		15.0 m		20.0 m	
qu (Kpa)	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
h _z	1230	710	1060	670	960	600	600	560
KlipLok 406	1050	610	910	570	820	520	760	480
KlipLok 700	450	260	390	240	350	220	320	200
KingKlip 700	1301	940	1259	890	1229	800	1170	740
Stramit SDU	1.11	1.91	1.28	2.02	1.42	2.25	1.53	2.40
Force (kN/m)								

KlipLok Type	Capacity kN
Lysaght 406	1.37
Lysaght 700	1.17
Fielders 700	0.5
Stramit SDU	1.8



qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

SUMMARY SHEET NO. 2

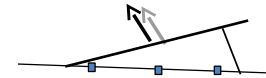
T.C. 3 for Regions A, B, C

**Roof Interface Bracket Spacing (mm) Across for PV – ezRack Single Tripod -ER-I-09 fixing anywhere on the Roofing sheet
Three Klip-Lok per frame**

WIND REGION	A								B							
qu (K Pa)	0.65	0.80	0.75	0.84	0.84	1.02	0.90	1.10	0.83	1.09	0.96	1.26	1.06	1.40	1.14	1.50
hz	5.0 m		10.0 m		15.0 m		40.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1030	840	900	800	800	650	600	490	810	610	700	530	630	480	590	440
KlipLok 700	1505	1442	1462	1426	1426	1365	1310	1070	1429	1340	1386	1160	1380	1040	1290	970
KingKlip 700	1110	910	970	860	860	700	650	530	870	660	750	570	680	510	630	480
Stramit SDU	1505	1442	1462	1426	1426	1200	1100	900	1429	1120	1280	970	1160	870	1080	810
Force (kN/m)	0.38	0.47	0.44	0.50	0.50	0.61	0.66	0.81	0.49	0.65	0.57	0.75	0.63	0.83	0.67	0.89

WIND REGION	C							
qu (Kpa)	1.27	2.19	1.47	2.31	1.63	2.57	1.75	2.75
hz	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	530	300	460	290	410	260	380	240
KlipLok 700	1150	670	1000	630	900	570	830	530
KingKlip 700	570	330	490	310	440	280	410	260
Stramit SDU	960	560	830	530	750	470	700	440
Force (kN/m)	0.75	1.29	0.87	1.37	0.97	1.52	1.04	1.63

KlipLok Type	Capacity kN
Lysaght 406	0.4
Lysaght 700	0.87
Fielders 700	0.43
Stramit SDU	0.73



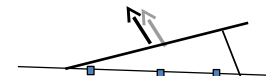
qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

**Roof Interface Bracket Spacing (mm) Across for PV – ezRack Single Tripod - ER-I-09 fixing on purlin on the Roofing sheet
Three Klip-Lok per frame**

WIND REGION	A								B							
qu (K Pa)	0.65	0.80	0.75	0.84	0.84	1.02	0.90	1.10	0.83	1.09	0.96	1.26	1.06	1.40	1.14	1.50
hz	5.0 m		10.0 m		15.0 m		40.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1505	1442	1462	1426	1426	1365	1406	1345	1429	1346	1386	1304	1355	1272	1334	1252
KlipLok 700	1505	1442	1462	1426	1426	1365	1406	1345	1429	1346	1386	1304	1355	1272	1334	1252
KingKlip 700	1290	1050	1120	1000	1000	820	750	610	1010	770	880	670	790	600	740	560
Stramit SDU	1505	1442	1462	1426	1426	1365	1406	1345	1429	1346	1386	1304	1355	1272	1334	1252
Force (kN/m)	0.38	0.47	0.44	0.50	0.50	0.61	0.66	0.81	0.49	0.65	0.57	0.75	0.63	0.83	0.67	0.89

WIND REGION	C							
qu (Kpa)	1.27	2.19	1.47	2.31	1.63	2.57	1.75	2.75
hz	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1301	1050	1259	1000	1229	890	1209	840
KlipLok 700	1301	900	1259	850	1210	760	1120	710
KingKlip 700	660	380	570	360	510	320	480	300
Stramit SDU	1301	1148	1259	1133	1229	1105	1209	1087
Force (kN/m)	0.75	1.29	0.87	1.37	0.97	1.52	1.04	1.63

KlipLok Type	Capacity kN
Lysaght 406	1.37
Lysaght 700	1.17
Fielders 700	0.5
Stramit SDU	1.8



qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

General Notes

- 1 Roof Interface bracket spacing in the above table for panel length of 1.58 m. Roof Interface bracket spacing will be reduced by, 6% for solar panel length upto 1.7m 11.5% for solar panel length upto 1.8m 21% for solar panel length upto 2.0m
- 2 The table prepared based on ER-R-ST Rail capacity and Klip-Lok bracket pull-out capacity.
- 3 This tables refer to using Klip-Lok type interface (ER-I-09) with Adjustable Tilt Leg using 2-M8 bolts for the connection and also with single Tripod using 2-M8 bolts for connection.
- 4 Max. distance allowed from the end of the single Tripod base to fixing of the Klip-lok bracket is 225 mm.
- 5 The above mentioned spacing table is for Roof Interface Bracket fixing including edge of the roof.
- 6 "On purlin" means that distance from the purlin to the Klip-Lok type bracket(centre to centre) is not more than 100mm.
- 7 Angle refers to tilt angle between roof and panels – not to horizontal.
- 8 Spacing applies to roofs with pitch <= 10 degrees

SUMMARY SHEET NO. 3

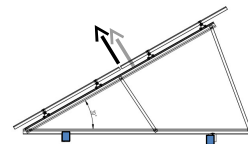
T.C. 3 for Regions A, B, C

Roof Interface Bracket Spacing (mm) Across for PV – ezRack Double Tripod -ER-I-09 fixing anywhere on the Roofing sheet
Two Klip-Lok per frame

WIND REGION	A								B							
qu (K Pa)	0.65	0.80	0.75	0.84	0.84	1.02	0.90	1.10	0.83	1.09	0.96	1.26	1.06	1.40	1.14	1.50
hz	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	320	260	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
KlipLok 700	700	570	610	540	540	440	510	410	550	420	480	360	430	320	400	300
KingKlip 700	350	280	300	270	270	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stramit SDU	590	480	510	460	460	370	430	350	460	350	400	300	360	270	330	N/A
Force (kN/m)	1.23	1.51	1.41	1.59	1.58	1.94	1.69	2.07	1.57	2.07	1.81	2.38	2.00	2.65	2.15	2.84

WIND REGION	C							
qu (Kpa)	1.27	2.19	1.47	2.31	1.63	2.57	1.75	2.75
hz	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
KlipLok 700	360	210	310	190	280	170	260	N/A
KingKlip 700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stramit SDU	300	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Force (kN/m)	2.40	4.13	2.77	4.37	3.08	4.86	3.32	5.21

KlipLok Type	Capacity
	kN
Lysaght 406	0.4
Lysaght 700	0.87
Fielders 700	0.43
Stramit SDU	0.73



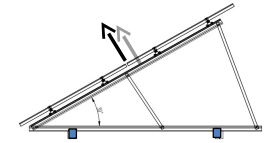
qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

Roof Interface Bracket Spacing (mm) Across for PV – ezRack Double Tripod - ER-I-09 fixing on purlin on the Roofing sheet
Two Klip-Lok per frame

WIND REGION	A								B							
qu (K Pa)	0.65	0.80	0.75	0.84	0.84	1.02	0.90	1.10	0.83	1.09	0.96	1.26	1.06	1.40	1.14	1.50
hz	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1110	900	960	860	860	700	800	660	870	660	750	570	680	510	630	480
KlipLok 700	950	770	820	730	730	600	690	560	740	560	640	490	580	440	540	410
KingKlip 700	400	330	350	310	310	N/A	290	N/A	310	240	270	N/A	N/A	N/A	N/A	N/A
Stramit SDU	1460	1190	1270	1130	1130	920	1060	860	1140	870	990	750	890	670	830	630
Force (kN/m)	1.23	1.51	1.41	1.59	1.58	1.94	1.69	2.07	1.57	2.07	1.81	2.38	2.00	2.65	2.15	2.84

WIND REGION	C							
qu (Kpa)	1.27	2.19	1.47	2.31	1.63	2.57	1.75	2.75
hz	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	570	330	490	310	440	280	410	260
KlipLok 700	480	280	420	260	370	N/A	350	N/A
KingKlip 700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stramit SDU	740	430	640	410	580	360	540	340
Force (kN/m)	2.40	4.13	2.77	4.37	3.08	4.86	3.32	5.21

KlipLok Type	Capacity
	kN
Lysaght 406	1.37
Lysaght 700	1.17
Fielders 700	0.5
Stramit SDU	1.8



qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

SUMMARY SHEET NO. 4

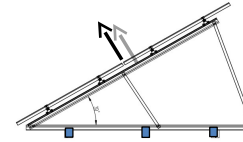
T.C. 3 for Regions A, B, C

**Roof Interface Bracket Spacing (mm) Across for PV – ezRack Double Tripod - ER-I-09 fixing anywhere on the Roofing sheet
Three Klip-Lok per frame**

WIND REGION	A								B							
	0.65	0.80	0.75	0.84	0.84	1.02	0.90	1.10	0.83	1.09	0.96	1.26	1.06	1.40	1.14	1.50
Qu (K Pa)	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
hz	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	480	390	410	370	370	300	340	280	370	280	320	N/A	290	N/A	270	N/A
KlipLok 700	1040	850	900	800	800	660	750	610	810	620	700	530	640	480	590	450
KingKlip 700	510	420	440	400	400	320	370	300	400	300	350	260	310	N/A	290	N/A
Stramit SDU	870	710	760	670	670	550	630	510	680	520	590	450	530	400	500	370
Force (kN/m)	0.83	1.02	0.96	1.07	1.07	1.31	1.15	1.41	1.07	1.40	1.23	1.61	1.36	1.80	1.46	1.93

WIND REGION	C							
	1.27	2.19	1.47	2.31	1.63	2.57	1.75	2.75
Qu (Kpa)	5.0 m		10.0 m		15.0 m		20.0 m	
hz	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
KlipLok 700	530	310	460	290	410	260	380	N/A
KingKlip 700	260	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stramit SDU	440	260	380	N/A	340	N/A	320	N/A
Force (kN/m)	1.63	2.80	1.88	2.96	2.09	3.30	2.25	3.53

KlipLok Type	Capacity kN
Lysaght 406	0.4
Lysaght 700	0.87
Fielders 700	0.43
Stramit SDU	0.73



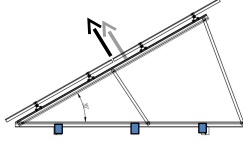
qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

**Roof Interface Bracket Spacing (mm) Across for PV – ezRack Double Tripod - ER-I-09 fixing on purlin on the Roofing sheet
Three Klip-Lok per frame**

WIND REGION	A								B							
	0.65	0.80	0.75	0.84	0.84	1.02	0.90	1.10	0.83	1.09	0.96	1.26	1.06	1.40	1.14	1.50
Qu (K Pa)	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
hz	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1505	1330	1420	1270	1270	1040	1190	970	1280	970	1110	840	1000	760	930	710
KlipLok 700	1400	1140	1220	1080	1080	890	1010	830	1090	830	950	720	860	650	800	600
KingKlip 700	600	480	520	460	460	380	430	350	460	350	400	300	360	270	340	250
Stramit SDU	1505	1442	1462	1426	1426	1365	1406	1270	1400	1280	1460	1110	1320	1000	1230	930
Force (kN/m)	0.83	1.02	0.96	1.07	1.07	1.31	1.15	1.41	1.07	1.40	1.23	1.61	1.36	1.80	1.46	1.93

WIND REGION	C							
	1.27	2.19	1.47	2.31	1.63	2.57	1.75	2.75
Qu (Kpa)	5.0 m		10.0 m		15.0 m		20.0 m	
hz	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	840	480	720	460	650	410	600	380
KlipLok 700	710	410	620	390	550	350	520	330
KingKlip 700	300	N/A	260	N/A	N/A	N/A	N/A	N/A
Stramit SDU	1000	640	950	600	860	540	800	500
Force (kN/m)	1.63	2.80	1.88	2.96	2.09	3.30	2.25	3.53

KlipLok Type	Capacity kN
Lysaght 406	1.37
Lysaght 700	1.17
Fielders 700	0.5
Stramit SDU	1.8



qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok

General Notes

- 1 Roof Interface bracket spacing in the above table for panel length of 1.58 m. Roof Interface bracket spacing will be reduced by, 6% for solar panel length upto 1.7m 11.5% for solar panel length upto 1.8m 21% for solar panel length upto 2.0m
- 2 The table prepared based on ER-R-ST Rail capacity and Klip-Lok bracket pull-out capacity.
- 3 This tables refer to using Klip-Lok type interface (ER-I-09) with Double Tripod using 2-M8 bolts for connection.
- 4 Max. distance allowed from the end of the Double Tripod base to fixing of the Klip-lok bracket is 500 mm.
- 5 The above mentioned spacing table is for Roof Interface Bracket fixing including edge of the roof.
- 6 "On purlin" means that distance from the purlin to the Klip-Lok type bracket(centre to centre) is not more than 100mm.
- 7 Angle refers to tilt angle between roof and panels – not to horizontal.
- 8 Spacing applies to roofs with pitch <= 10 degrees

SUMMARY SHEET NO. 5

T.C. 3 for Regions A, B, C

Direct Mounting of the panels or using L-feet (ER-I-05) with two rails per panel

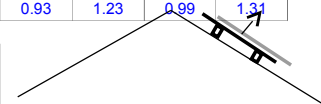
Roof Interface Bracket Spacing (mm) Across for PV – ezRack single Panel - ER-I-09 fixing anywhere on the Roofing sheet

WIND REGION	A								B							
	0.65	0.80	0.75	0.84	0.84	1.02	0.90	1.10	0.83	1.09	0.96	1.26	1.06	1.40	1.14	1.50
	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	700	570	610	540	540	440	510	410	550	410	470	360	430	320	400	300
KlipLok 700	1505	1240	1330	1180	1180	970	1110	900	1190	910	1040	790	940	710	870	660
KingKlip 700	750	610	650	580	580	480	540	440	590	450	510	390	460	350	430	320
Stramit SDU	1280	1040	1110	990	990	810	930	760	1000	760	870	660	780	590	730	550
Force (kN/m)	0.57	0.70	0.65	0.73	0.73	0.89	0.78	0.96	0.73	0.96	0.84	1.10	0.93	1.23	0.99	1.31

WIND REGION	C							
	1.27	2.19	1.47	2.31	1.63	2.57	1.75	2.75
	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	360	200	310	190	280	170	260	160
KlipLok 700	780	450	670	430	610	380	560	360
KingKlip 700	380	220	330	210	300	190	280	170
Stramit SDU	650	380	560	360	510	320	470	300
Force (kN/m)	1.11	1.91	1.28	2.02	1.42	2.25	1.53	2.40

KlipLok Type	Capacity
	kN
Lysaght 406	0.4
Lysaght 700	0.87
Fielders 700	0.43
Stramit SDU	0.73

qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok



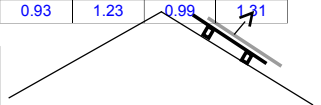
Roof Interface Bracket Spacing (mm) Across for PV – ezRack single panel - ER-I-09 fixing on purlin on the Roofing sheet

WIND REGION	A								B							
	0.65	0.80	0.75	0.84	0.84	1.02	0.90	1.10	0.83	1.09	0.96	1.26	1.06	1.40	1.14	1.50
	5.0 m		10.0 m		15.0 m		20.0 m		5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1505	1442	1462	1426	1426	1365	1406	1345	1429	1346	1386	1240	1355	1110	1334	1040
KlipLok 700	1505	1442	1462	1426	1426	1300	1406	1220	1429	1220	1386	1060	1260	950	1170	890
KingKlip 700	880	710	760	680	680	550	630	520	680	520	590	450	540	400	500	380
Stramit SDU	1505	1442	1462	1426	1426	1365	1406	1345	1429	1346	1386	1304	1355	1272	1334	1252
Force (kN/m)	0.57	0.70	0.65	0.73	0.73	0.89	0.78	0.96	0.73	0.96	0.84	1.10	0.93	1.23	0.99	1.31

WIND REGION	C							
	1.27	2.19	1.47	2.31	1.63	2.57	1.75	2.75
	5.0 m		10.0 m		15.0 m		20.0 m	
Angle	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30	≤ 15	≤ 30
KlipLok 406	1230	710	1060	670	960	600	890	560
KlipLok 700	1050	610	910	570	820	520	760	480
KingKlip 700	450	260	390	240	350	220	320	200
Stramit SDU	1301	940	1259	890	1229	800	1170	740
Force (kN/m)	1.11	1.91	1.28	2.02	1.42	2.25	1.53	2.40

KlipLok Type	Capacity
	kN
Lysaght 406	1.37
Lysaght 700	1.17
Fielders 700	0.5
Stramit SDU	1.8

qu = ultimate wind pressure
Notice, KingKlip is Fielders KlipLok



General Notes

- 1 Roof Interface bracket spacing in the above table for panel length of 1.58 m. Roof Interface bracket spacing will be reduced by, 6% for solar panel length upto 1.7m 11.5% for solar panel length upto 1.8m 21% for solar panel length upto 2.0m
- 2 The table prepared based on ER-R-ST Rail capacity and Klip-Lok bracket pull-out capacity.
- 3 This tables refer to using Klip-Lok type interface (ER-I-09) with single panel Flush mount using 1-M8 bolts for connection.
- 4 The above mentioned spacing table is for Roof Interface Bracket fixing including edge of the roof.
- 5 "On purlin" means that distance from the purlin to the Klip-Lok type bracket(centre to centre) is not more than 100mm.
- 6 Angle refers to roof angle