

TECHNICAL SUBMISSION

From: DCI Electrical Systems Ltd Unit 15, Wrotham Business Park Barnet Hertfordshire EN5 4SZ	Tecs Sub no: TH-IS-03-001-X-012922-60-939 REV: P01
	Date: 04/08/2022
To: HG Construction Ltd	Project: Tottenham Hale. Building 3

COMPLIANCE STATEMENT – DCI Electrical Systems have read the Employers Requirements and confirm our proposals set out below conform and comply with the current design proposals and manufactured products proposed will be installed to the manufactures guild lines and current BS standards

Description of Technical Submittal:

Subject: – Solar PV and Bespoke Ballasted System	Description: Flat Roof
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Submission Particulars
- Proposed System Size: 10.8kWp 26 x 400w Sunpower Maxeon 3 Solar panel - Sun Fixings Bespoke Ballasted System - Solis 10kW 4G 3ph Inverter S5-GR3P(3-20)K - Electrical: DC Cable, AC Cable, AC Isolation, MID Approved Meters

Comments

Consultant	Submittal Approval Status			Signed	Date
	A	B	C		

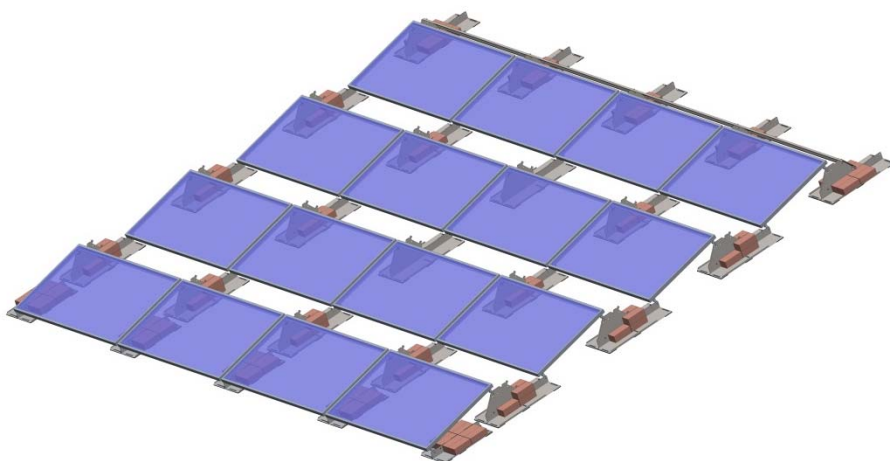
Approval Status: A – Approved with no comment B – Approved with comments to be incorporated C- Not Approved; to be resubmitted

Light Tegra is a low ballasted system suitable for flat roofs where heavy dead loads and penetration to the building's substructure are not permitted.

This system is available at a module pitch of 10° - 12°. It uses support-like feet to connect the modules together into a block and uses the principle of aerodynamics to create suction underneath the system, therefore reducing the amount of additional ballast required to keep the system in place. This system is suitable for most framed module types.

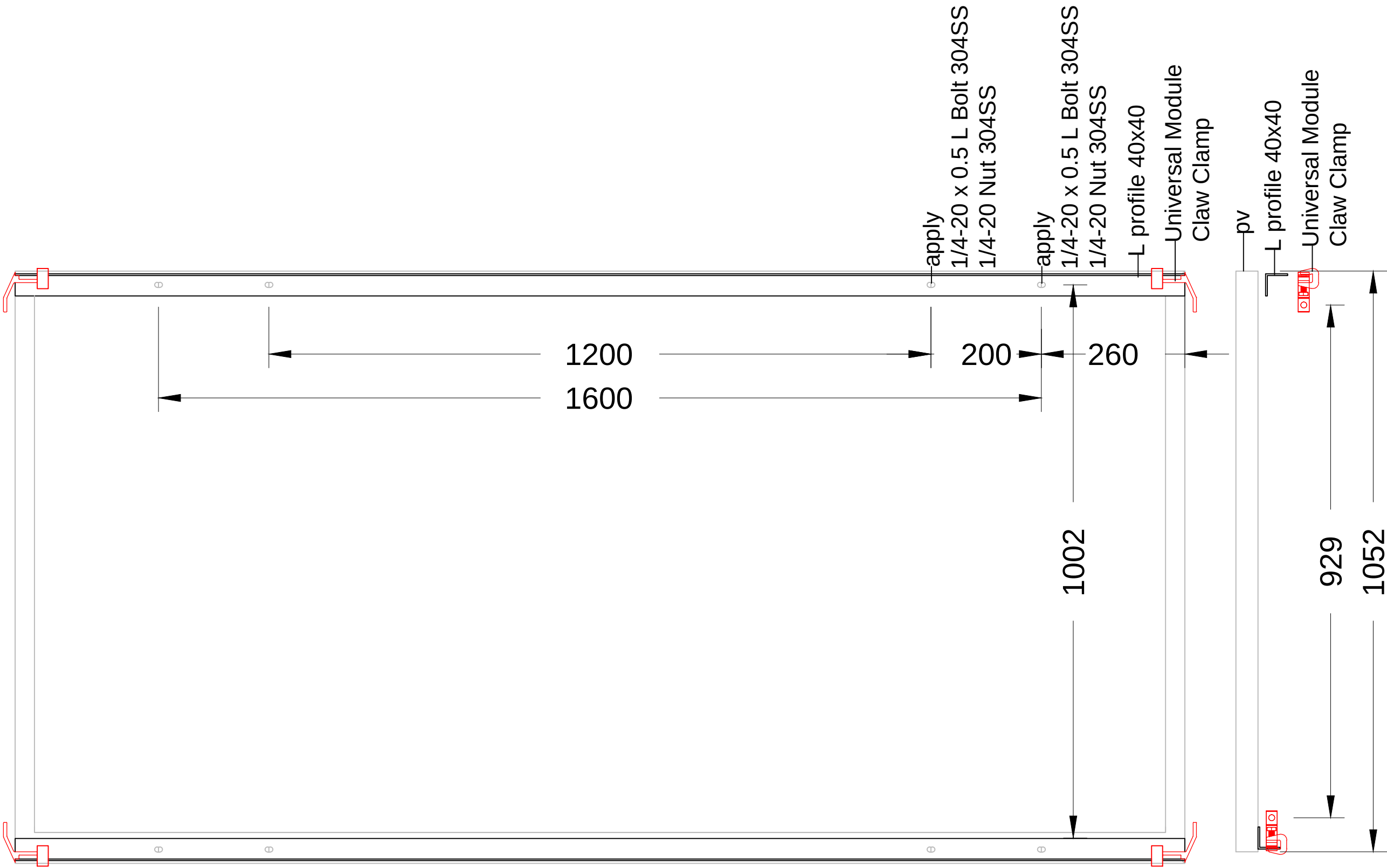
This system can be used with the following Sunfixings accessory range: Module Claw Clamp, Wind Deflector, Wind Deflector End Plate, South Support, E/W Support, N/S Support.

Other suitable Sunfixings' systems include: East West Tegra, which uses the same components.

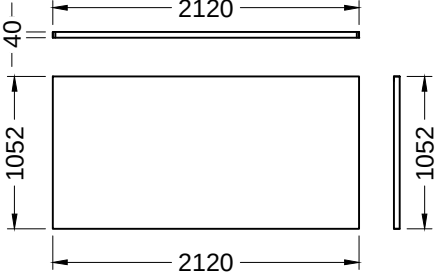


TECHNICAL DETAILS

Field of Application	Flat roofs
Suitable Tolerances	Min roof pitch 1°, max roof pitch 5°
Module Orientation	Landscape only
Connection	No connection, ballasted only.
Material	Aluminium, stainless steel, and galvanised steel
Approximate Mass	30 kg/module (excluding mass of module and additional ballast)



13.5kW_30pv_450w



Legend:			
Module		Cross Connector	
Corner Clamp		Fixing Point	
Middle Clamp		Substructure	
Rail Connector Fixed		Crowns / Seams	
Module Rail		Elevation / Park Tegra	
Base Rail		Rail Connector Flexible	
Windbracing		Roof Line	

Notes:

CONFIDENTIAL
PROPOSAL ONLY

Project: Tottenham Hale North Island
System: East west system
Mod. Dimensions: -
Base Rail: n/a
Module Rail: N/A
Date: 13/05/2022
Dwn: CESEK **Ckd:** MC



Ground mounted systems are subject to ground conditions. Roof mounted systems are subject to structural survey. Information is correct according to submitted checklist and is subject to change. Please refer to the system Mounting Instructions, failure to do so will void warranties. This drawing, with respect to this project is prepared on the assumption that Sunfixings' products will be used and that they are not intended for any other use. Consequently, Sunfixings cannot accept any responsibility for the use of and/or reliance upon this drawing by third parties. All third parties should calculate their own specifications and drawings in order to ensure these are correct for their own products. Do not scale from this drawing. All dimensions are indicative only and are in mm unless otherwise stated. Do not use any dimensions without checking on site. The drawing is copyright of Sunfixings and these drawings must not be used or replicated without Sunfixings' written consent.
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Dwg No: MC2655 **Rev:** -

Project Design and Calculation Results

The results have been calculated using following Standard and coefficient results from wind tunnel testing:

BS EN 1991-1-4

Date of Calculation: 12.05.2022

Name of Project: SUNFIX10038-ow-Tottenham Hale North Islar

Revision: 1

Project Location: Tottenham Hale, London

Roof Height: 70,30 m

Basic Wind Speed: 21,5 m/s

Peak Velocity Pressure: $0,99 \text{ kN/m}^2 = 40 \text{ m/s} = 144 \text{ km/h}$

Weight of Mounting System: 264,78 kg

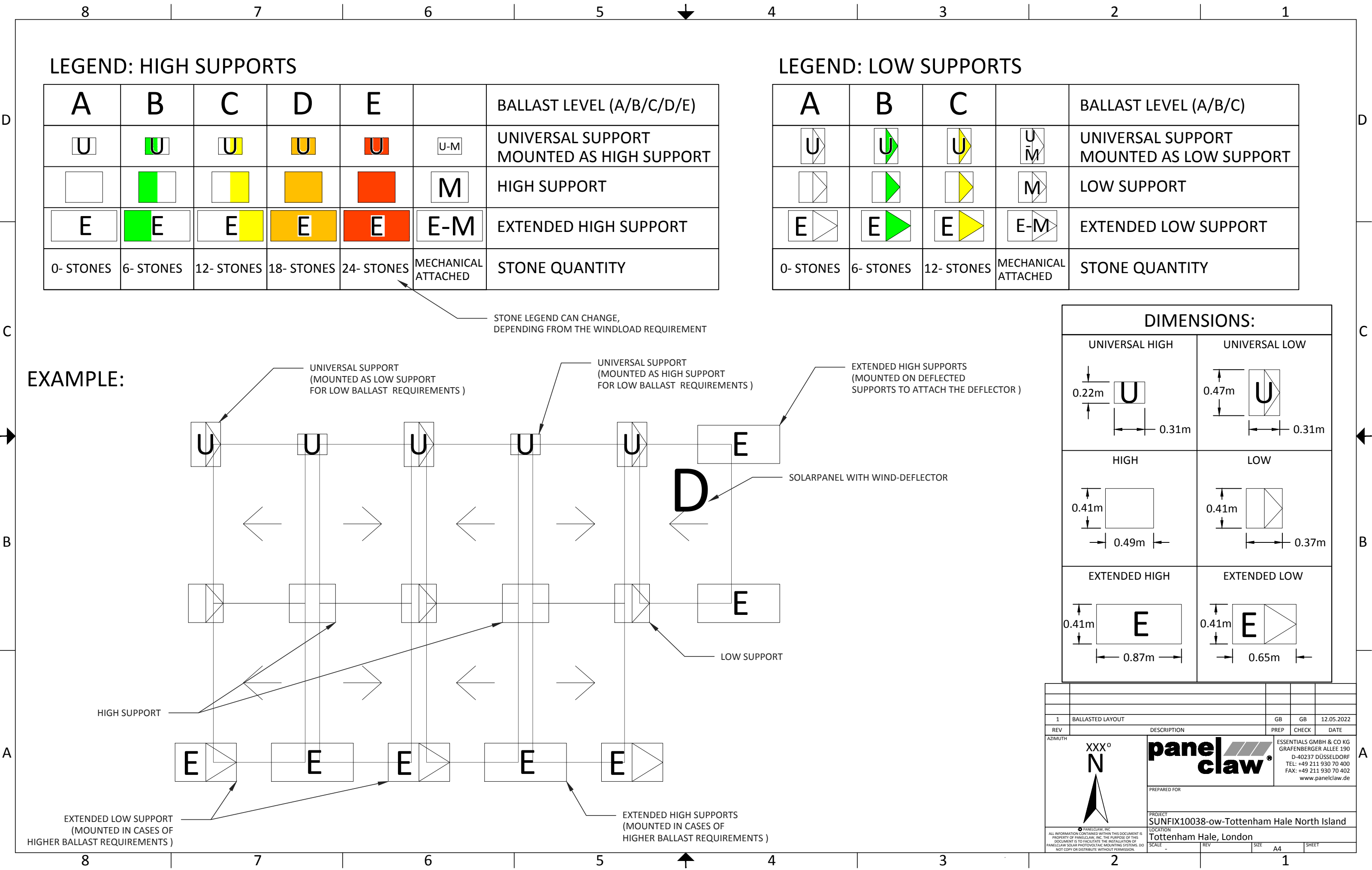
Weight of Modules: 750 kg

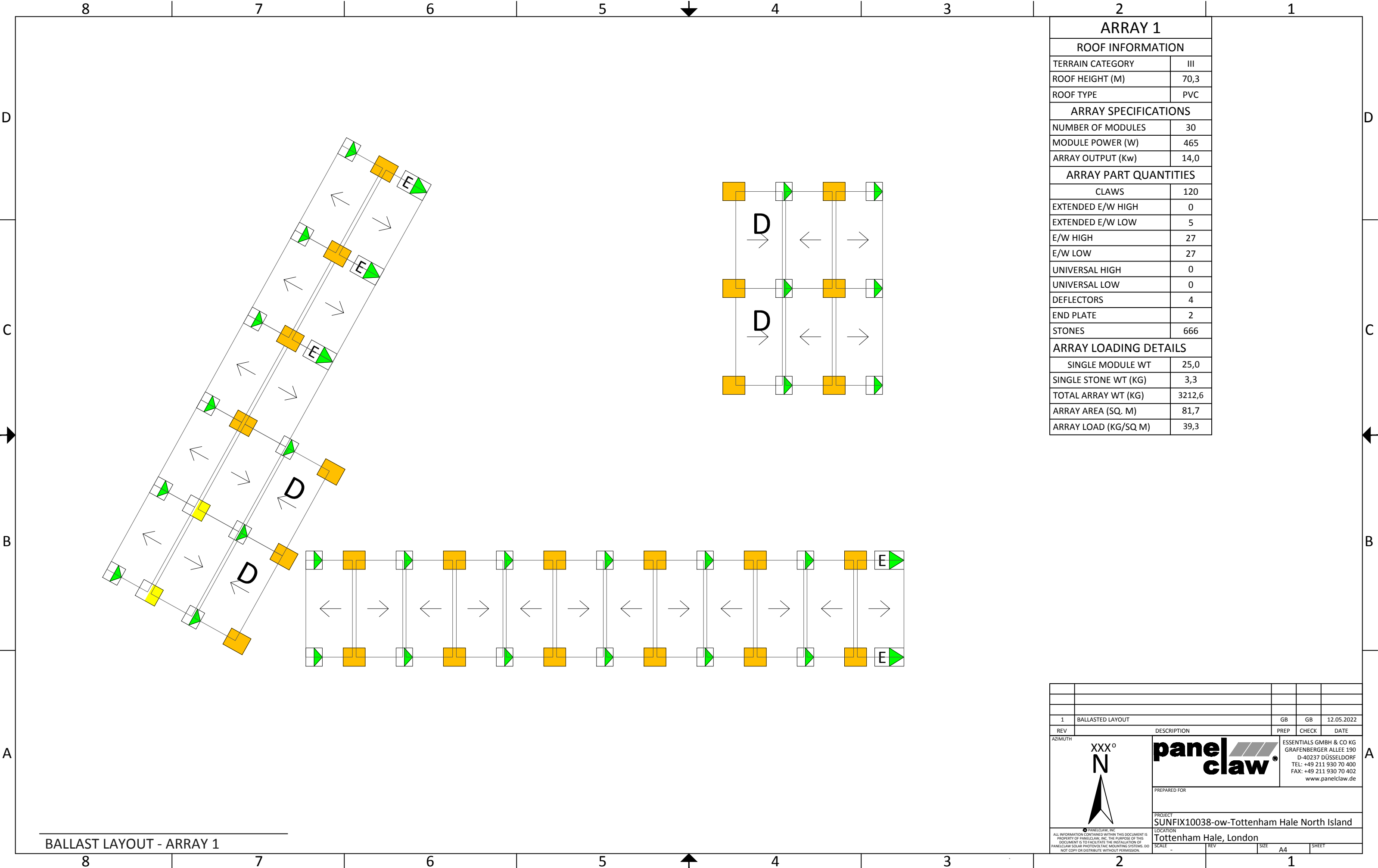
Weight of Ballast: 2197,8 kg

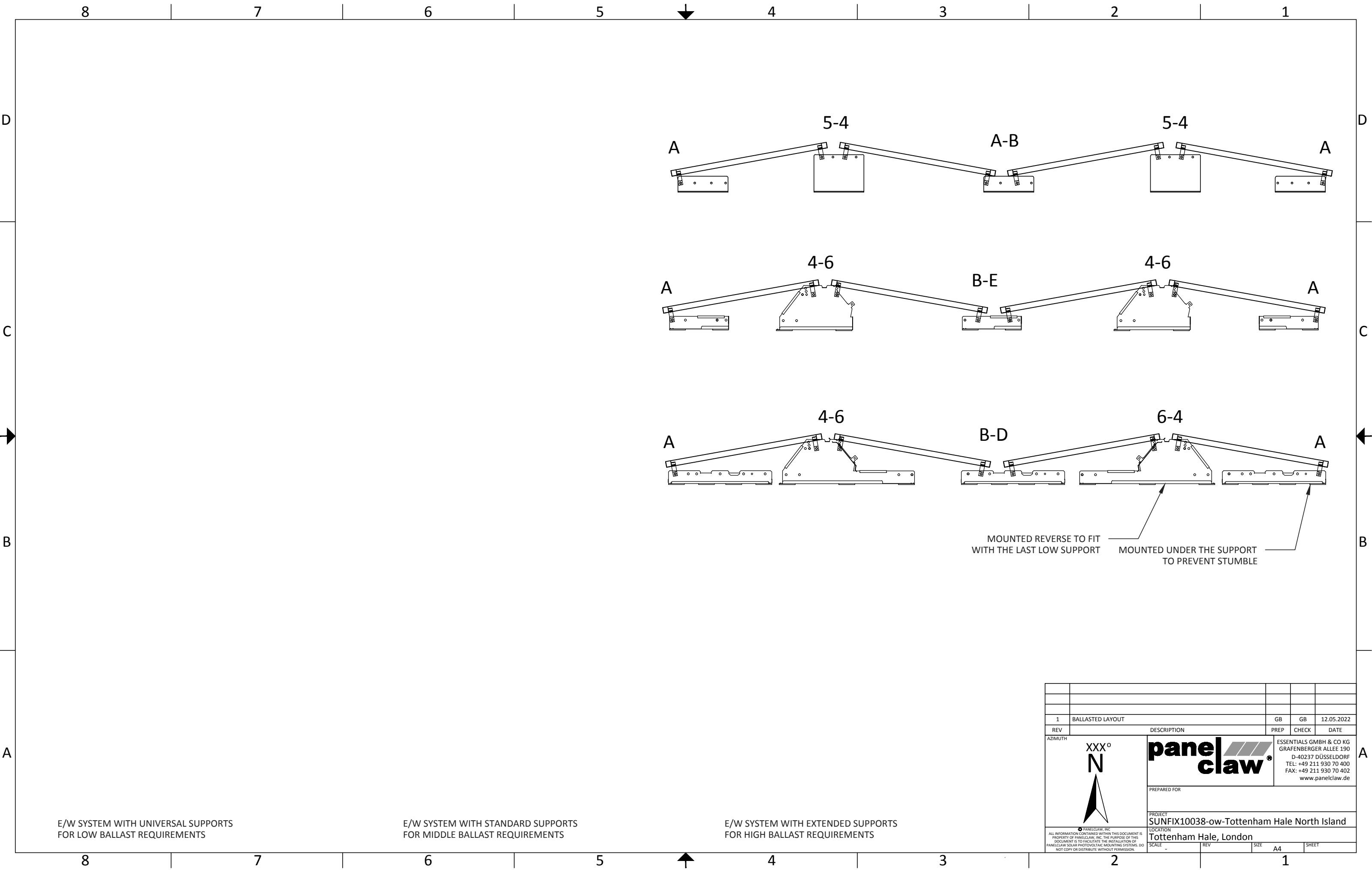
Total Weight: 3212,58 kg

Total Weight over the area of modules: 39,3 kg/m²

Systemload over complete roofsurface: 8,9 kg/m²







E/W SYSTEM WITH UNIVERSAL SUPPORTS
FOR LOW BALLAST REQUIREMENTS

E/W SYSTEM WITH STANDARD SUPPORTS
FOR MIDDLE BALLAST REQUIREMENTS

E/W SYSTEM WITH EXTENDED SUPPORTS
FOR HIGH BALLAST REQUIREMENTS

1	BALLASTED LAYOUT	GB	GB	12.05.2022	
REV	DESCRIPTION	PREP	CHECK	DATE	
AZIMUTH XXX° N		panel claw			ESSENTIALS GMBH & CO KG GRAFENBERGER ALLEE 190 D-40237 DÜSSELDORF TEL: +49 211 930 70 400 FAX: +49 211 930 70 402 www.panelclaw.de
PREPARED FOR					
PROJECT SUNFIX10038-ow-Tottenham Hale North Island					
LOCATION Tottenham Hale, London					
SCALE -		REV	SIZE A4	SHEET	

TÜV SOLAR CABLE (H1Z2Z2-K)

CAVO UNIPOLARE FLESSIBILE HALOGEN FREE PER APPLICAZIONI FOTOVOLTAICHE
FLEXIBLE SINGLE CORE CABLE HALOGEN FREE FOR PHOTOVOLTAIC SYSTEMS

CE ReachH compliant
APPROVAZIONI / APPROVALS:
Certificate Nr R60113052



COLORI 1° e 2° ISOLAMENTO/
1st and 2nd INSULATION COLOUR



Conduttore trefolo flessibile in rame stagnato
Twisted flexible tinned copper conductor

- 1 – 1° isolamento:
copolimero speciale halogen free
1st insulation:
halogen free special copolymer
- 2 – 2° isolamento:
copolimero speciale halogen free
2nd insulation:
halogen free special copolymer
- 3 – Conduttore in rame
Copper conductor

MARCATURA / MARKING :

CET SOLAR CABLE 1Xn,00 mm² 1.0/1.0 kV H1Z2Z2-K TÜV Rheinland Type Approved R60113052 IEC 60332-1 CE

APPLICAZIONI /
APPLICATIONS



CONFEZIONI /
PACKAGING



Dati Tecnici	
Tensione Nominale Uo/U	1.0/1.0 kV AC – 1.5/1.5 kV DC
Tensione max.consentita	1,8 kV DC
Tensione di Prova	6.5 kV AC
Temperatura di Esercizio	- 40 ÷ +90°C
Max. temp. conduttore	+120°C (for 20.000 hrs.)
Raggio minimo di curvatura	5 x D cavo (installazione fissa)
Omologazione	TÜV Rheinland
Norme di Riferimento :	EN 50618: 2014 IEC 60228 – EN 50395 – EN 50396 EN 60332-1-2 – EN 61034-1; -2 EN 50525-1 – EN 60216-1; -2

Technical Data	
Nominal Voltage Uo/U	1.0/1.0 kV AC – 1.5/1.5 kV DC
Maximum permitted voltage	1,8 kV DC
Test Voltage	6.5 kV AC
Operating Temperature	- 40 ÷ +90°C
Max. core temperature	+120°C (for 20.000 hrs.)
Min. bending radius	5 x D cable (fixed installation)
Approved	TÜV Rheinland
References:	EN 50618: 2014 IEC 60228 – EN 50395 – EN 50396 EN 60332-1-2 – EN 61034-1; -2 EN 50525-1 – EN 60216-1; -2

TIPO	SEZIONE	DIAMETRO MAX FILI CONDUTTORE	SPESSORE ISOLANTE 1° / 2°	DIAMETRO ESTERNO	RESISTENZA ELETTRICA MAX A 20°C MAX ELECTRIC RESISTANCE AT 20°C	REATTANZA (a 50 Hz)
TYPE	SECTION	MAX WIRE DIAMETER OF CONDUCTOR	INSULATION THICKNESS 1 ST / 2 ND	OVERALL DIAMETER	WIRE STAGNATO TINNED COPPER	REACTANCE (at 50 Hz)
	mm ²	mm	mm	mm	Ω/Km	Ω/Km
TÜV SOLAR CABLE	1x2.50	0.26	0.70 / 0.80	5.00	8.21	/
	1x4.00	0.31	0.70 / 0.80	5.40	5.09	0.143
	1x6.00	0.31	0.70 / 0.80	6.20	3.39	0.135
	1x10.0	0.41	0.70 / 0.80	7.40	1.95	0.119

Tolleranza sui diametri: in accordo con le norme di riferimento TÜV
Diameters tolerances: according with TÜV standards

SEZIONE	Portata amperometrica dei cavi PV in funzione del tipo d'installazione (T=60°C) Current carrying capacity of PV cables in accordance to the installation (T=60°C)		
SECTION	Cavo singolo – posa in aria Single cable free in air	Cavo singolo – posa su superficie Single cables on surfaces	Cavi in fascio – posa su superficie To cables adjacent on surfaces
mm ²	(A)	(A)	(A)
1 x 2.5	41	39	33
1 x 4.0	55	52	44
1 x 6.0	70	67	57
1 x 10	98	93	79

Proprietà

La speciale costruzione e i materiali impiegati, consentono al cavo di soddisfare i requisiti più recenti previsti per i sistemi fotovoltaici in accordo alle normative: EN50618 – EN 60216-1-2 – EN 61034. L'isolamento garantisce un elevato potere isolante e notevole resistenza all'invecchiamento termico, nonché proprietà di resistenza all'abrasione ed alla fiamma, resistenza all'ozono, resistenza ai raggi UV ed è facilmente rimovibile dall'isolamento interno per facilitare operazioni di connessione.

Properties

The cable is able to satisfy the latest requirements fixed for PV systems in accordance to the following Reference Standards: EN50618 – EN 60216-1-2 – EN 61034. The special insulation has qualities of high abrasion resistance to high temperature. Moreover the insulation has property of flame retardant and ozone resistance. The cable is UV-resistant and the external sheath can be removed from the inner layer of extruded insulation.

TÜV SOLAR CABLE (H1Z2Z2-K)

APPENDIX



The H1Z2Z2-K is to be considered Harmonized because has been tested and certified in accordance with the requirements of the harmonized standard EN 50618: 2014 (quoted in the official document of the European Union that lists the harmonized standards to the LVD Directive 2006/95/EC (Low voltage Directive)).

Use and type of installation for applications in photovoltaic (HD 60364-7-712). For fixed installation indoors and outdoors. Installation of walls, walkways, pipes, conduits, and similar systems. The cables are suitable for use with Class II.

They are inherently short-circuit and earth fault proof acc.to HD 60364-5-52.

Chemical properties

Halogen-free	acc. to EN 50525-1 Annex B (EN 50267-2-1, EN 50267-2-2, IEC 60754-1, IEC 60754-2)
Low Smoke Emission	acc. to IEC 61034, EN 61034 (Light Transmittance > 60%)
Weather resistance	<i>Ozone resistance:</i> acc. to EN 60811-403 Test Method A, EN 50396 clause 8.1.3 Test Method B <i>Weathering/UV resistance:</i> acc. to EN 50618 Annex E, EN 50289-4-17 (Method A), EN ISO 4892-1 /-2 tensile strength and elongation at break after 720h (360 Cycles) of exposure to UV lights
Acid and alkaline resistance	acc. to EN 50618:2014 Annex B: 7 days, 23° C (N-Oxalic Acid, N-Sodium Hydroxide) as for EN 60811-404
Resistance to fire	Flame propagation acc. to EN 60332-1-2 (Single Cable Flame Test) Tested according to CPR: EN 50399 Common test methods for cables under fire conditions Heat release and smoke production measurement on cables during flame spread test, UNI EN 13501-6 Flammability class: D_{ca} Smoke emission class: s2 Drip particle class: d2

Mechanical properties

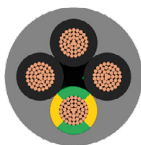
	for insulation and sheath before ageing acc. to EN 50618 Annex B (test acc. To EN 60811-501). tensile strength $\geq 8 \text{ N/mm}^2$ elongation at break for insulation and sheath $\geq 125 \%$
Shrinkage test on sheath	acc. to EN 50618, Table 2: <2% (test acc. to EN 60811-503).
Dynamic Penetration Test	acc. to EN 50618
Durability of Print	acc. to EN 50618 (test acc. to EN 50396)
Direct Burial	Impact test resistance of single conductor type USE and USE-2 cables (tested acc. to UL854) Rodent resistance safety can be optimized by utilizing protective hoses and cables with spinning or braid metallic coatings
Water resistance	AD8 category Tested with successful acc. to EN 50525-2-21 "Annex E" (after immersion for 100 days / 2.400 h to 50°C): • Voltage at 1 kV AC on cable in water at 50°C during 100 days without any breakdown • Mechanical properties on sheath after immersion 100 days at 50°C • Minimum tensile strength after immersion 100 days at 50°C > 7 MPa • Minimum elongation at break after immersion 100 days at 50°C > 200% • Water absorption on sheath after immersion 100 days at 50°C less than 40% • Insulation resistance tests with a minimum resistivity of $10^{11} \Omega \cdot \text{cm}$ measured after 14 days in water at 50°C
Long term resistance of insulation to d.c	acc. to EN 50618, Table 2 test acc. to EN 50395 clause 9: Cable immersed in water containing 1% NaCl for 240h ; water temperature: $85^\circ\text{C} \pm 5$; Voltage applied: 1.8 kV D.C.

Thermal properties

Lifetime	acc. to EN 50618 : 25 years the cables are designed to operate at a normal max conductor temperature of 90°C, but for a maximum of 20.000 hours a max. conductor temperature of 120 °C at a max. ambient temperature of 90 °C is permitted. (test according to EN 60216-1 and EN 60216-2)
Max.short circuit temperature	250°C (for 5 sec.)
Resistance to cold	EN 50618, Table 2: Cold Bending Test at -40°C acc. to EN 60811-504; Cold Elongation Test at -40°C acc. to EN 60811-505; Cold Impact Test at -40°C acc. to EN 50618 Annex C and EN 60811-506. Damp-Heat Test Acc. to EN 50618, Table 2 (test acc. to EN 60068-2-78) : 90°C for 1.000h and min. 85% humidity



Veriflex[®] YY PVC (YSLY) Control Cable



ELAND CABLES ©

Eland Product Group: V01

APPLICATION

Veriflex[®] flexible YY control cable for instrumentation and control equipment, for tooling machinery production lines, and in flexible applications for free movement without tensile load. Suitable in dry, ambient and wet rooms. These indoor cables are not used for external or underground installation.

CHARACTERISTICS

Voltage Rating U_o/U
300/500V

Temperature Rating

Fixed: -40°C to +80°C

Flexed: -5°C to +70°C

Minimum Bending Radius

Fixed: 4 x overall diameter

Flexed: 12.5 x overall diameter

CONSTRUCTION

Conductor

Class 5 flexible plain copper

Insulation

PVC (Polyvinyl Chloride)

Sheath

PVC (Polyvinyl Chloride)

Core Identification

● Black with ○ White number

From 3 cores: ● Black with white number + ● Green/Yellow

Colour-coded cores available upon request

Sheath Colour

● Grey

BSI KITEMARK[™] TESTED



KM 662609

Cables are tested and verified by The Cable Lab[®] to confirm they meet the quality standards required of the BSI Cable Testing Verification Kitemark[™].

STANDARDS

VDE 0207-363-3, VDE 0482-332-1-2, VDE 819-102 (TM54)

Flame Retardant according to IEC/EN 60332-1-2

ISO/IEC 17025 LABORATORY TESTED

This product is subject to the Quality Assurance protocols of The Cable Lab[®], an ISO/IEC 17025 accredited cable testing laboratory. Testing includes vertical flame, conductor resistance, tensile & elongation, and dimensional consistency, verified to published standards and approved product drawings.



8578



FS 672069



EMS 672067



OHS 672066

REGULATORY COMPLIANCE

This cable is compliant with European Regulation EN 50575, the Construction Products Regulation.



This cable meets the requirements of the Low Voltage Directive 2014/35/EU and the RoHS Directive 2011/65/EU. RoHS compliance has been tested and confirmed by The Cable Lab[®] as meeting the requirements of the BSI RoHS Trusted Kitemark[™].



KM 636267





DIMENSIONS

ELAND PART NO.	NO. OF CORES	NOMINAL CROSS SECTIONAL AREA mm ²	NOMINAL THICKNESS OF INSULATION mm	NOMINAL THICKNESS OF OUTER SHEATH mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
V0102001GR000	2	0.5	0.40	0.7	4.8	36
V0102011GR000	2	0.75	0.40	0.7	5.2	46
V0102021GR000	2	1	0.40	0.7	5.6	56
V0102031GR000	2	1.5	0.40	0.8	6.4	73
V0102041GR000	2	2.5	0.50	0.9	7.6	113
V0103001GR000	3	0.5	0.40	0.7	5.1	44
V0103011GR000	3	0.75	0.40	0.7	5.5	55
V0103021GR000	3	1	0.40	0.8	6.1	69
V0103031GR000	3	1.5	0.40	0.8	6.8	91
V0103041GR000	3	2.5	0.50	0.9	8.3	140
V0103051GR000	3	4	0.60	1	10	210
V0103061GR000	3	6	0.65	1.10	11.5	293
V0103071GR000	3	10	0.75	1.40	14.9	500
V0103081GR000	3	16	0.75	1.50	16.8	704
V0103091GR000	3	25	0.90	1.80	21.1	1080
V0104001GR000	4	0.5	0.40	0.7	5.5	54
V0104011GR000	4	0.75	0.40	0.8	6.2	70
V0104021GR000	4	1	0.40	0.8	6.7	85
V0104031GR000	4	1.5	0.40	0.9	7.6	116
V0104041GR000	4	2.5	0.50	1	9.3	179
V0104051GR000	4	4	0.60	1.10	11.2	269
V0104061GR000	4	6	0.65	1.20	12.8	374
V0104071GR000	4	10	0.75	1.50	16.6	608
V0104081GR000	4	16	0.75	1.60	18.7	844
V0104091GR000	4	25	0.90	2	23.6	1327
V0104101GR000	4	35	0.95	2.20	27.2	1790
V0105001GR000	5	0.5	0.40	0.8	6.2	64
V0105011GR000	5	0.75	0.40	0.8	6.7	83
V0105021GR000	5	1	0.40	0.9	7.5	104
V0105031GR000	5	1.5	0.40	0.9	8.3	136
V0105041GR000	5	2.5	0.50	1.10	10.3	213
V0105051GR000	5	4	0.60	1.20	12.4	321
V0105061GR000	5	6	0.65	1.30	14.3	447
V0105071GR000	5	10	0.75	1.60	18.4	760
V0105081GR000	5	16	0.75	1.80	20.9	1064
V0105091GR000	5	25	0.90	2.20	26.4	1673
V0105101GR000	5	35	0.95	2.40	30.3	2252
V0107001GR000	7	0.5	0.40	0.8	6.7	81
V0107011GR000	7	0.75	0.40	0.9	7.5	108
V0107021GR000	7	1	0.40	0.9	8.1	130
V0107031GR000	7	1.5	0.40	1	9.2	177
V0107041GR000	7	2.5	0.50	1.10	11.2	277
V0107051GR000	7	4	0.60	1.30	13.7	423
V0107061GR000	7	6	0.65	1.40	15.7	593
V0108011GR000	8	0.75	0.40	0.9	8.1	120
V0108021GR000	8	1	0.40	1	9	150
V0108031GR000	8	1.5	0.40	1	10	200



ELAND PART NO.	NO. OF CORES	NOMINAL CROSS SECTIONAL AREA mm ²	NOMINAL THICKNESS OF INSULATION mm	NOMINAL OUTER SHEATH THICKNESS mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
V0112001GR00000	12	0.5	0.40	1	9.1	139
V0112011GR00000	12	0.75	0.40	1	9.9	179
V0112021GR00000	12	1	0.40	1.10	10.9	225
V0112031GR00000	12	1.5	0.40	1.20	12.4	302
V0112041GR00000	12	2.5	0.50	1.4	15.3	478
V0118001GR00000	18	0.5	0.40	1.1	10.7	201
V0118011GR00000	18	0.75	0.40	1.20	11.9	230
V0118021GR00000	18	1	0.40	1.20	12.9	324
V0118031GR00000	18	1.5	0.40	1.40	14.8	446
V0118041GR00000	18	2.5	0.50	1.60	18.2	704
V0125001GR00000	25	0.5	0.40	1.2	12.9	285
V0125011GR00000	25	0.75	0.40	1.30	14.3	372
V0125021GR00000	25	1	0.40	1.40	15.7	462
V0125031GR00000	25	1.5	0.40	1.60	18	627
V0125041GR00000	25	2.5	0.50	1.90	22.3	997
V0134011GR00000	34	0.75	0.40	1.50	16.3	492
V0134021GR00000	34	1	0.40	1.60	17.9	617
V0134031GR00000	34	1.5	0.40	1.70	20.2	833
V0134041GR00000	34	2.5	0.50	2.10	25.2	1337
V0150021GR00000	50	1	0.40	1.80	21	869
V0150031GR00000	50	1.5	0.40	2	23.8	1186
V0150041GR00000	50	2.5	0.50	2.40	29.6	1898
V0161021GR00000	61	1	0.40	1.90	22.7	1031

ELECTRICAL CHARACTERISTICS

NOMINAL CROSS SECTIONAL AREA mm ²	CURRENT CARRYING CAPACITES 30°C CONTINUOUS LOADING A	MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C ohms/km
0.5	9	39
0.75	12	26
1	15	19.5
1.5	18	13.3
2.5	26	7.98
4	34	4.95
6	44	3.3
10	61	1.91
16	82	1.21
25	108	0.780
35	135	0.554



Technical Data

IS4P Enclosed Rotary Isolators

IP65



- 4 Pole Range available from 20A to 150A
- IP65 Protection Rating (enclosure)
- EN 60947-3 Compliant
- 3 Sizes of Enclosure
- Multiple Gland Knockouts
- Lockable Rotary Handle
- Flame Retardant
- External Mounting Points
- Additional Earth Connection
- Interlocked Enclosure Lid

ORDERING INFORMATION

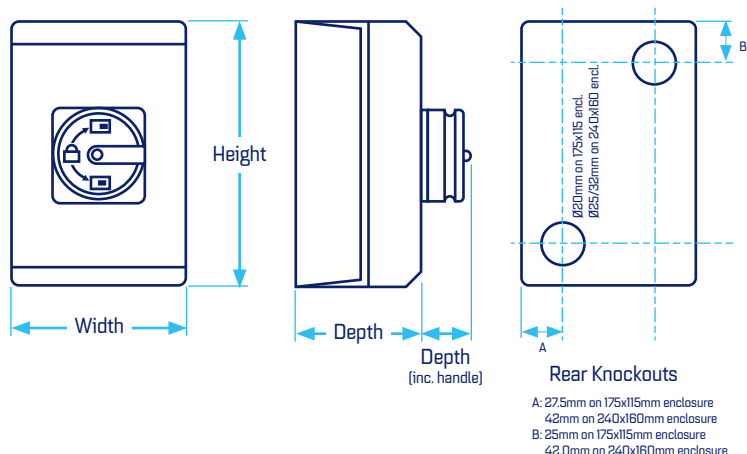
Part Number	Current I _e [AC21]	Rated Operating Voltage	Poles
IS4P20	20A	230 - 440V	4
IS4P20L	20A	230 - 440V	4
IS4P32	32A	230 - 440V	4
IS4P32L	32A	230 - 440V	4
IS4P40	40A	230 - 440V	4
IS4P63	63A	230 - 440V	4
IS4P80	80A	230 - 440V	4
IS4P100	100A	230 - 440V	4
IS4P125	125A	230 - 440V	4
IS4P150	150A	230 - 440V	4

DIMENSIONS [mm]

Part Number	Height	Width	Depth	Depth inc. Handle	Gland Knockouts
IS4P20	125	100	85	120	M20/25
IS4P20L	175	115	100	135	M20/25
IS4P32	125	100	85	120	M20/25
IS4P32L	175	115	100	135	M20/25
IS4P40	175	115	100	135	M20/25
IS4P63	175	115	100	135	M20/25
IS4P80	240	160	120	165	M20/25/32
IS4P100	240	160	120	165	M20/25/32
IS4P125	240	160	120	165	M20/25/32
IS4P150	240	160	120	165	M20/25/32

GENERAL INFORMATION

Enclosure Material	Polycarbonate
Lid Screw Material	Stainless Steel
Ingress Protection	IP65 Enclosure / IP20 Body
Interlocked Handle	In ON Position
Approvals	UKCA, CE, SEMKO
Compliance	IEC EN 60947-3, RoHS



TECHNICAL SPECIFICATION

Part Number	IS4P20	IS4P20L	IS4P32	IS4P32L	IS4P40	IS4P63	IS4P80	IS4P100	IS4P125	IS4P150
Poles	4	4	4	4	4	4	4	4	4	4
Rated Operational Current I _e [AC21] [A]	20	20	32	32	40	63	80	100	125	150
Rated Power of 3Ph Motor at 415V [AC23A] [kW]	5.5	5.5	11	11	15	22	30	37	45	70
Rated Voltage [V]	415	415	415	415	415	415	415	415	415	415
Frequency [Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Rated Insulation Voltage U _i [V]	690	690	690	690	690	690	690	690	690	690
Max. Cable Size [Solid/Stranded] [mm ²]	10	10	10	10	10	16	35	35	35	35
Rated Cond. Short Circuit Current [A]	20 I _e	20 I _e	20 I _e	20 I _e	20 I _e	20 I _e	20 I _e	20 I _e	20 I _e	20 I _e
Short Time Withstand Current 415V 1 sec. [A]	12 I _e	12 I _e	12 I _e	12 I _e	12 I _e	12 I _e	12 I _e	12 I _e	12 I _e	12 I _e
Rated Make/Break Capacity [A]	8 I _e	8 I _e	8 I _e	8 I _e	8 I _e	8 I _e	8 I _e	8 I _e	8 I _e	8 I _e
Protection Degree	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65
Tightening Torque [Nm]	2	2	2	2	2	2	3	3	3	3
Mechanical Life [10 ³]	10	10	10	10	10	10	10	10	10	10
Weight [kg]	0.52	0.75	0.52	0.75	0.75	0.75	1.34	1.34	1.34	1.34

For more information, email sales@stag-electrical.com



Technical Data

SAC Auxiliary Contacts

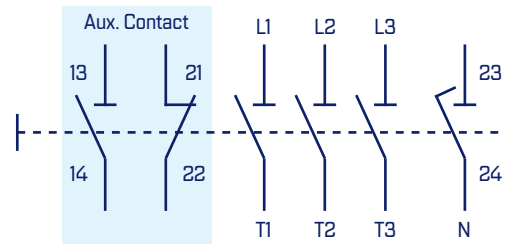


- Auxiliary Contact for Stag Rotary Isolators
- EN 60947-3 Compliant
- 3 Sizes Covering Entire Isolator Range
- Fits on Left Hand Side
- 1 NO & 1NC Contacts

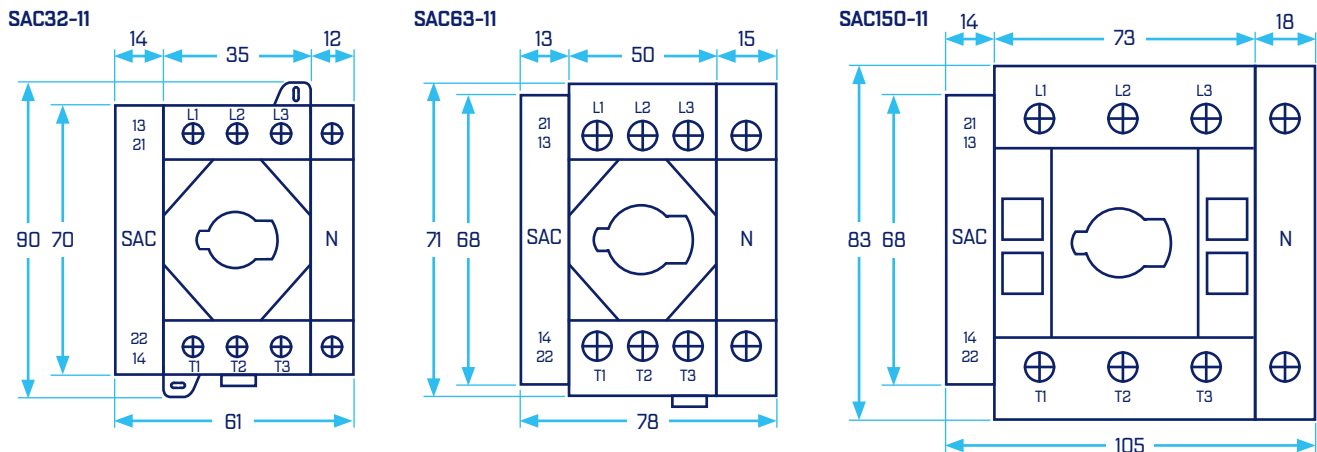
ORDERING INFORMATION

Part Number	Fits
SAC32-11	IS4P20, IS4P20L, IS4P32, IS4P32L
SAC63-11	IS4P40, IS4P63
SAC150-11	IS4P80, IS4P100, IS4P125, IS4P150

WIRING



DIMENSIONS (mm)



TECHNICAL SPECIFICATION

Part Number	SAC32-11	SAC63-11	SAC150-11
Contact Configuration	1 Normally Open (NO), 1 Normally Closed (NC)		
Rated Operational Current I_n [AC15] [A] 230V	6	6	6
Rated Operational Current I_n [DC13] [A] 125V	1.1	1.1	1.1
Rated Operational Current I_n [DC13] [A] 250V	0.55	0.55	0.55
Rated Insulation Voltage U_i [V]	500	500	500
Maximum Fuse [A] gG/gL	10	10	10
Max. Cable Size [Solid] [mm²]	0.75 - 2.5	0.75 - 2.5	0.75 - 2.5
Max. Cable Size [Flexible with Ferrule] [mm²]	0.5 - 1.5	0.5 - 1.5	0.5 - 1.5
Tightening Torque [Nm]	0.6	0.6	0.6
Control Circuit Reliability at 24V DC, 10mA [Hr]	< 10 ⁻⁵ , < 1 fault in 100,000 operations		
Compliance	IEC EN 60947-3, RoHS		
Approvals	UKCA, CE		

The emlite EMP1 Three phase metering range offers high quality accurate meters that are suitable for direct connected domestic, commercial, Solar PV and light industrial applications.

Features -

- Fully MID approved
- 4 quadrant power measurement (Import and Export, Active and Reactive Energy)
- Optional Power Quality Information - Volts, Current, Power etc.
- Optional pulsed outputs
- Optical communications port
- Solid brass terminals

The EMP1.az and EMP1.av are the entry models of the emlite three phase metering range. They are suitable for a host of different applications where basic consumption or generation metering is required. The EMP1.az and EMP1.av variants covered in this information sheet are of solid high quality construction and benefit from features normally found in more expensive metering.



- Accuracy Class A or B (MID) [active energy] and Cl 2 [reactive energy*]
- 4 quadrant energy measurement
- Optional power quality information*
- Configurable pulsed outputs**
- Multiple terminal cover options (Short, Extended(Standard), Extended plus)
- Clear easy to read 8 digit LCD with specific symbols for different quantities.
- Solid Brass terminals
- Optional finger guard for main terminals

NB: * denotes standard setting, ** pulse set for kWh import as standard

Three Phase Whole Current Meter

EMP1.AV only

Pulsed Output

An opto-isolated pulse output can provide data for collection by an energy management system or AMR data logger. These pulses are output via the meter's auxiliary terminals.

The output conforms to IEC 62053-31.



Technical Data - Meter

Electrical

Voltage	Nominal voltage	3 x 230v
	Voltage withstand	400V continuously
Frequency	Nominal frequency	50Hz, variation $\pm 5\%$
Current	Basic current (Iref)	5, 10, 15 and 20*
	Maximum (Imax)	100A

Metrology

Accuracy	Active energy	Class B, to EN 50470 1-3*
	Reactive energy	Class 2, to IEC 62053-23

Environmental

Temperature Range -25°C to +55°C

Ingress protection

IP54, to BS EN 60529

Physical

Terminal arrangement

DIN43857-Part 2, fixing centres of 150 $\pm$ 1mm

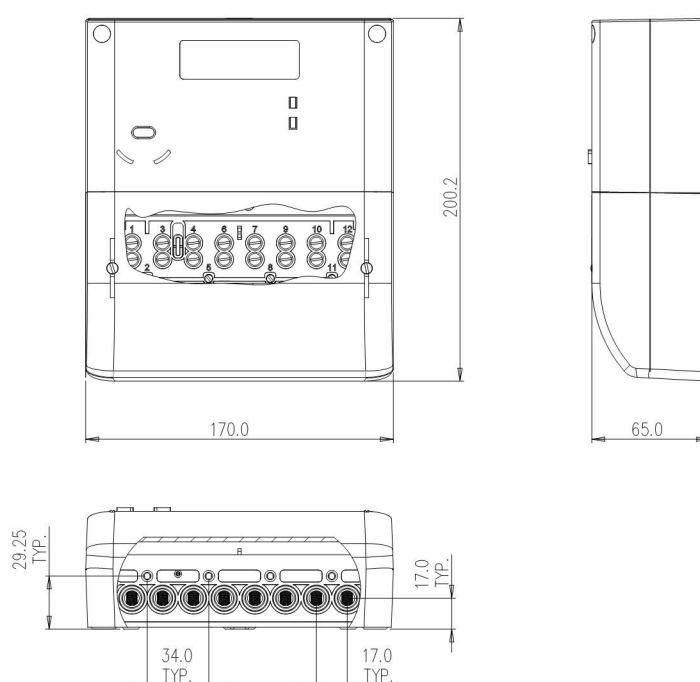
Main Terminal size

8.2mm $\varnothing \pm 0.2$

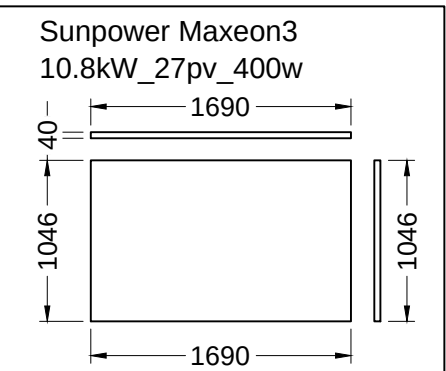
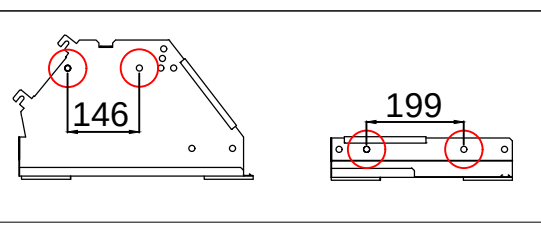
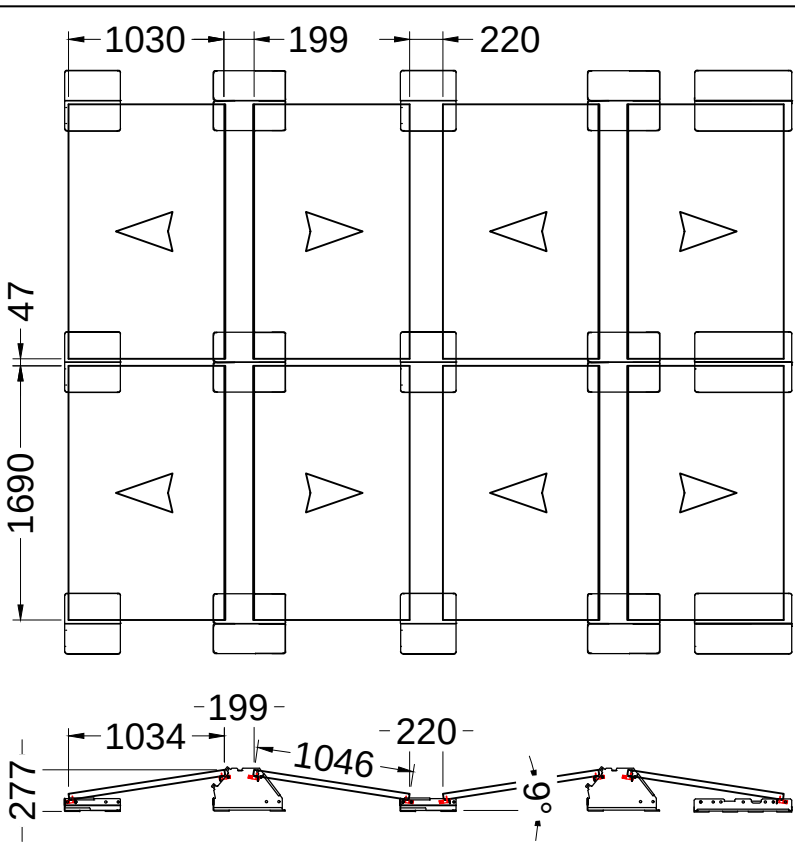
Terminal Construction

Solid brass

Dimensions



NB * denotes standard setting



Legend:

Module		Cross Connector	
Corner Clamp		Fixing Point	
Middle Clamp		Substructure	
Rail Connector Fixed		Crowns / Seams	
Module Rail		Elevation / Park Tegra	
Base Rail		Rail Connector Flexible	
Windbracing		Roof Line	

Notes:

**CONFIDENTIAL
PROPOSAL ONLY**

Project: Tottenham Hale North Island
System: East west system
Mod. Dimensions: -
Base Rail: n/a
Module Rail: N/A
Date: 03/08/2022
Dwn: CESEK **Ckd:** MC



Ground mounted systems are subject to ground conditions. Roof mounted systems are subject to structural survey. Information is correct according to submitted checklist and is subject to change. Please refer to the system Mounting Instructions, failure to do so will void warranties. This drawing, with respect to this project is prepared on the assumption that Sunfixings' products will be used and that they are not intended for any other use. Consequently, Sunfixings cannot accept any responsibility for the use of and/or reliance upon this drawing by third parties. All third parties should calculate their own specifications and drawings in order to ensure these are correct for their own products.

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MAXEON 3 SOLAR PANEL

390–400 W | Up to 22.6% Efficient



Ideal for residential applications



White backsheet, black frame

More Lifetime Energy

Designed to maximise energy generation through leading efficiency, enhanced performance in high temperatures, and higher energy conversion in low-light conditions like mornings, evenings and cloudy days.

Uncompromising Durability

Engineered to power through all types of weather conditions with crack-resistant cells and reinforced connections that protect against fatigue and corrosion, to an electrical architecture that mitigates the impact of shade and prevents hot-spot formation.



Superior Sustainability

Clean ingredients, responsible manufacturing, and lasting energy production for 40 years make SunPower Maxeon panels the most sustainable choice in solar.

SUNPOWER



The Industry's Longest Warranty

SunPower Maxeon panels are covered by a 40-year warranty¹ backed by extensive third-party testing and field data from more than 33 million panels deployed worldwide.

Product and power coverage	40 Years
Year 1 minimum warranted output	98.0%
Maximum annual degradation	0.25%



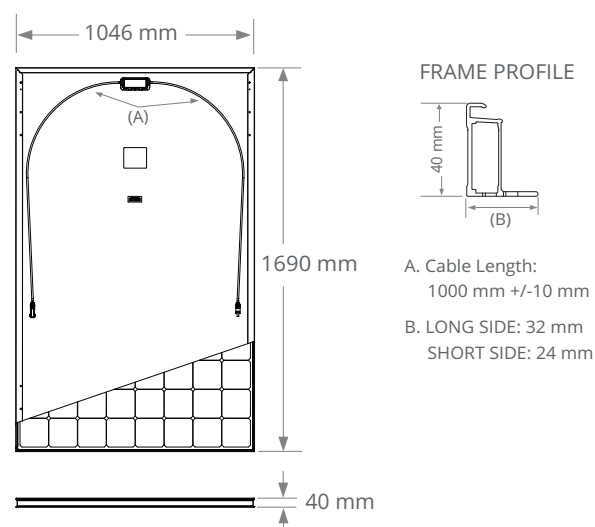
Learn more about the SPR-MAX3-XXX
sunpower.maxeon.com

MAXEON 3 POWER: 390–400 W | EFFICIENCY: Up to 22.6%

Electrical Data			
	SPR-MAX3-400	SPR-MAX3-395	SPR-MAX3-390
Nominal Power (P _{nom}) ²	400 W	395 W	390 W
Power Tolerance	+5/0%	+5/0%	+5/0%
Panel Efficiency	22.6%	22.3%	22.1%
Rated Voltage (V _{mpp})	65.8 V	65.4 V	65.0 V
Rated Current (I _{mpp})	6.08 A	6.04 A	6.00 A
Open-Circuit Voltage (V _{oc})	75.6 V	75.6 V	75.5 V
Short-Circuit Current (I _{sc})	6.58 A	6.57 A	6.56 A
Max. System Voltage	1000 V IEC		
Maximum Series Fuse	20 A		
Power Temp Coef.	−0.27% / °C		
Voltage Temp Coef.	−0.236% / °C		
Current Temp Coef.	0.058% / °C		

Warranties, Certifications and Compliance	
Standard Tests ³	IEC 61215, IEC 61730
Quality Management Certs	ISO 9001:2015, ISO 14001:2015
Ammonia Test	IEC 62716
Desert Test	IEC 60068-2-68, MIL-STD-810G
Salt Spray Test	IEC 61701 (maximum severity)
PID Test	1000 V: IEC 62804
Available Listings	TUV
IFLI Declare Label	First solar panel labeled for ingredient transparency and LBC-compliance. ⁴
Cradle to Cradle Certified™ Bronze	First solar panel line certified for material health, water stewardship, material reutilization, renewable energy & carbon management, and social fairness. ⁵
Green Building Certification Contribution	Panels can contribute additional points toward LEED and BREEAM certifications.
EHS Compliance	RoHS, OHSAS 18001:2007, Recycle Scheme, REACH SVHC-163

Operating Condition And Mechanical Data	
Temperature	−40°C to +85°C
Impact Resistance	25 mm diameter hail at 23 m/s
Solar Cells	104 Monocrystalline Maxeon Gen 3
Tempered Glass	High-transmission tempered anti-reflective
Junction Box	IP-68, Stäubli (MC4), 3 bypass diodes
Weight	19 kg
Max. Load ⁶	Wind: 2400 Pa, 244 kg/m² front & back Snow: 5400 Pa, 550 kg/m² front
Frame	Class 1 black anodized (highest AAMA rating)



Declare.



Please read the safety and installation instructions.
Visit www.sunpower.maxeon.com/int/PVInstallGuideIEC.
Paper version can be requested through
techsupport.ROW@maxeon.com.

1 40-year warranty is not available in all countries or all installations and requires registration, otherwise our 25-year warranty applies. Service availability varies by country and installation provider.

2 Standard Test Conditions (1000 W/m² irradiance, AM 1.5, 25° C). NREL calibration Standard: SOMS current, LACCS FF and Voltage.

3 Class C fire rating per IEC 61730.

4 Maxeon DC panels first received the International Living Future Institute Declare Label in 2016.

5 Maxeon DC panels are Cradle to Cradle Certified™ Bronze.

www.c2ccertified.org/products/scorecard/e-series_xseries_solar_panels_-_sunpower_corporation. Cradle to Cradle Certified™ is a certification mark licensed by the Cradle to Cradle Products Innovation Institute.

6 Safety factor 1.5 included.

Made in Philippines (Cells)

Assembled in Mexico (Module)

Specifications included in this datasheet are subject to change without notice.

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View warranty, patent and trademark information at maxeon.com/legal.

SUNPOWER
FROM MAXEON SOLAR TECHNOLOGIES

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