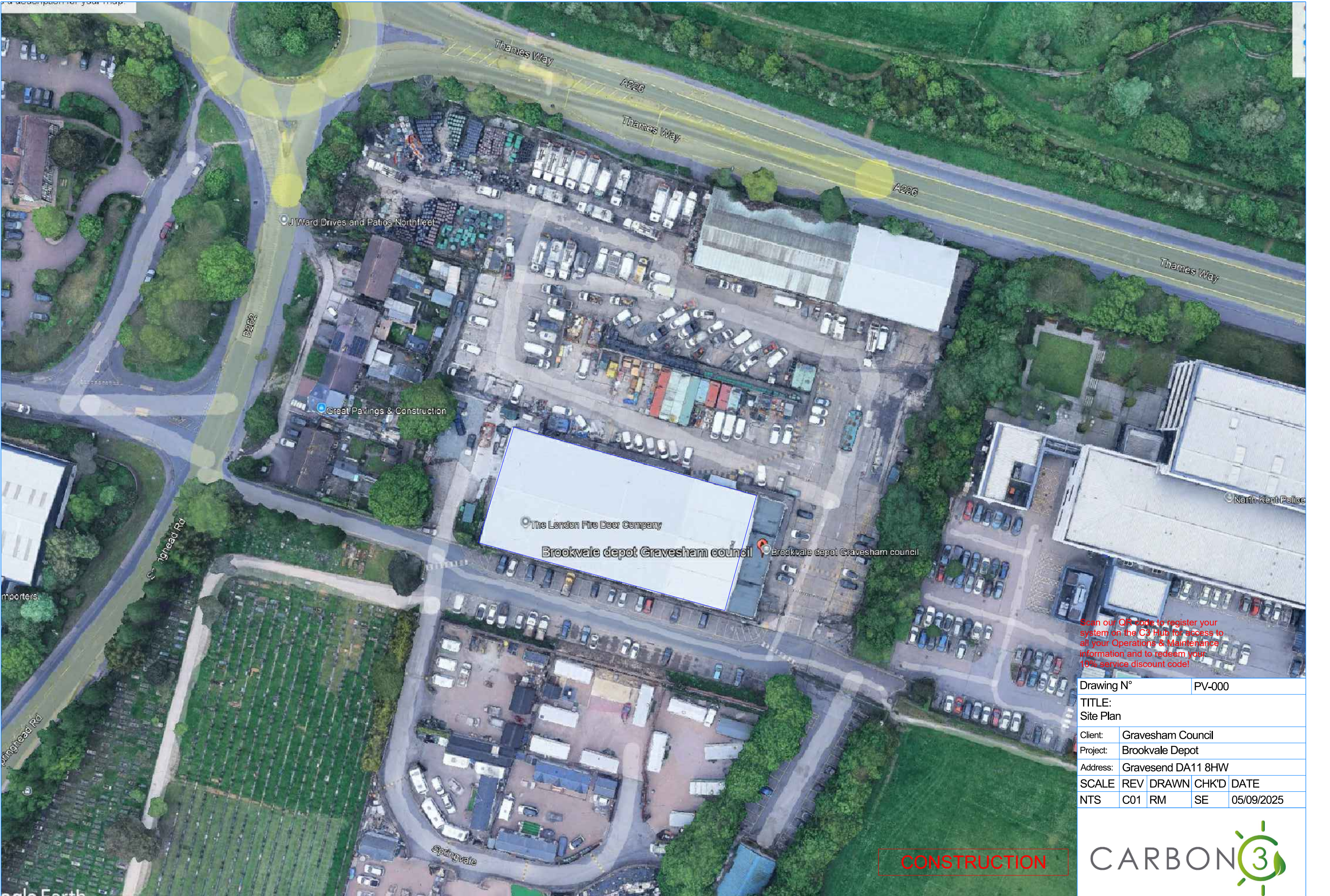




Scan our QR code to register your system on the C3 Hub for access to all your Operations & Maintenance information and to redeem your 10% service discount code!

Drawing N°			PV-000		
TITLE: Site Plan					
Client:		Gravesham Council			
Project:		Brookvale Depot			
Address:		Gravesend DA11 8HW			
SCALE	REV	DRAWN	CHK'D	DATE	
NTS	C01	RM	SE	05/09/2025	

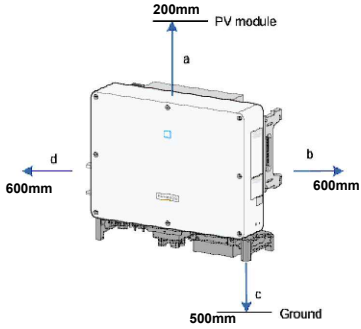
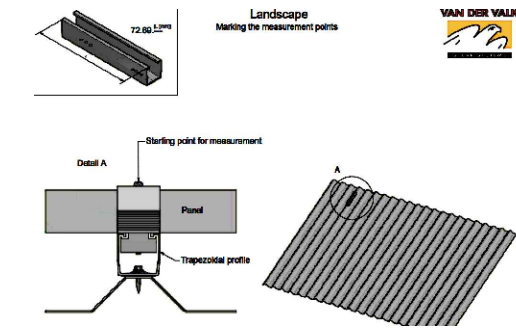
CONSTRUCTION





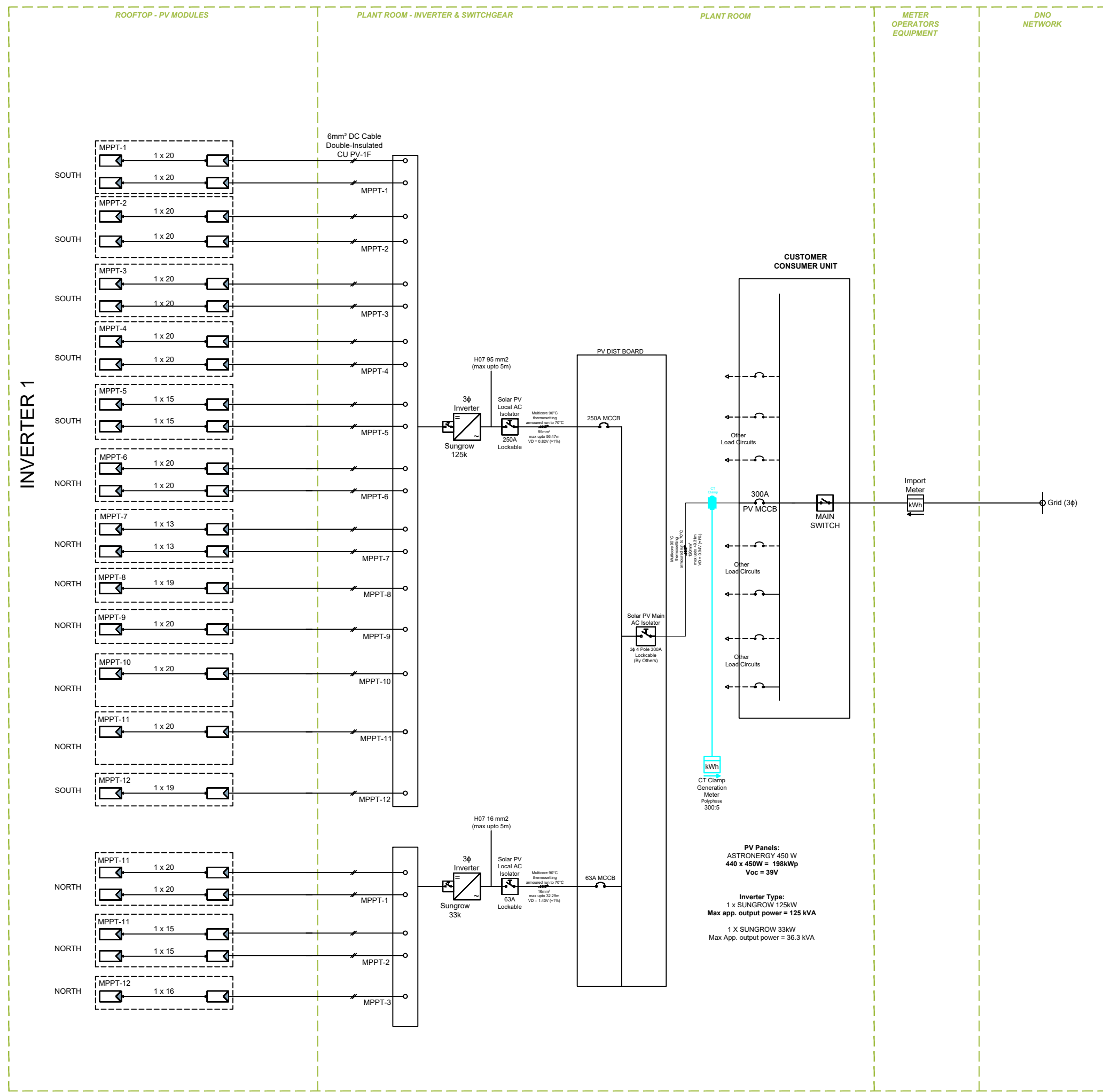
Scan our QR code to register your system on the C3 Hub for access to all your Operations & Maintenance information and to redeem your 10% service discount code!

Drawing N°			PV-001		
TITLE: Max Roof fit Solar PV Layout					
Client:	Gravesham Council				
Project:	Brookvale Depot				
Address:	Gravesend DA11 8HW				
SCALE	REV	DRAWN	CHK'D	DATE	
NTS	C02	RM	SE	25/09/2025	



CONSTRUCTION





Installer:



Unit 15, The Alders
Seven Mile Lane, Mereworth
Maidstone, Kent
ME18 5JG
+44 (0)300 303 56 88
office@carbon3.co.uk
www.carbon3.co.uk

198kWp Solar PV Electric Schematic

Brookvale Depot. Drawing No.SLD-001 | Rev: C02

Date: 25/09/2025

Start-up sequence:

- 1) Ensure that all isolators and breakers in the Distribution Board area for the Solar PV installation are "on"
- 2) Ensure that the DC isolator(s) next to or on the inverter(s) are set to "1"("on")
- 3) Turn on the local mains AC isolator(s) next to the inverter(s)
- 4) Assuming sufficient daylight for generation, the "ON" or "Operation" light or the display will indicate that the system is functioning correctly

Disconnection Sequence:

- 1) Turn off the mains AC at the isolator(s) next to the inverter(s). The inverter(s) will automatically and safely disconnect.
- 2) Turn off the DC isolator(s) next to or on the inverter(s) (set to "0")
- 3) Wait 5 minutes before removing cover

ER G99/1-5 Inverter Settings:

- 1) Over Voltage 262.2V (1s) / 273.7V (0.5s)
- 2) Under Voltage 184V (2.5s)
- 3) Over Frequency 52Hz (0.5s)
- 4) Under Frequency 47.5Hz (20s) / 47Hz (0.5s)
- 5) Loss of Supply ROCOF 1.0Hz/sec (0.5s)
- 6) Reconnection Time 20sec minimum

Scan our QR code to register your system on the C3 Hub for access to all your Operations & Maintenance information and to redeem your 10% service discount code!



ValkPVplanner

Project report



Project name : Brookvale Depot PV

Date (modified) : 25-09-2025

Time (modified) : 16:21

Company : Carbon3

User : Rohit Mandavkar

► Overview total project

- Location information / Project overview 03
- Bill of Materials - Total project 04
- Drawing total project 05

► Building 1 - Area 1 - Subarea 1

- Information | Building 1 - Area 1 - Subarea 1 06
- Strength calculations | Building 1 - Area 1 - Subarea 1 07
- Bill of Materials | Building 1 - Area 1 - Subarea 1 08
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► Building 1 - Area 2 - Subarea 1

- Information | Building 1 - Area 2 - Subarea 1 11
- Strength calculations | Building 1 - Area 2 - Subarea 1 12
- Bill of Materials | Building 1 - Area 2 - Subarea 1 13
- Drawing | Building 1 - Area 2 - Subarea 1 14

► Regulations 16

► Safety instructions | Warranty 18

► Location information

Project	: Brookvale Depot PV
Project location	: 105 Springhead Rd, Northfleet, Gravesend DA11 8HW, UK
Terrain category	: Town
High neighbouring	: No
Wind area	: 22 m/s
Snow zone	: 0.5 kN/m ²
Altitude above sea	: 6.3 m
Peak wind pressure	: 829,30 N/m ²
Snow load	: 238,77 N/m ²

► Project overview

Building	No. of PV-panels	Power [kWp]	System type	Weight of mounting system [kg]
Building 1	440	198,00		235
Building 1 - Area 1 - Subarea 1	209	94,05	ValkPitched - Trapezoidal	112
Building 1 - Area 2 - Subarea 1	231	103,95	ValkPitched - Trapezoidal	124
Total project	440	198,00		235

Warning: Automatic dilatations were manually disabled when this project was made in the Carbon3 PVplanner. Please take the following recommendations into account for the required dilatations in your system: 1) Max. coupled length for aluminium profiles ≤ 30 meters // 2) Max. coupled length for steel profiles (roof carriers) ≤ 60 meters:

Max. coupled length for aluminium profiles: 30 m

Max. coupled length for steel roof carriers: 60 m

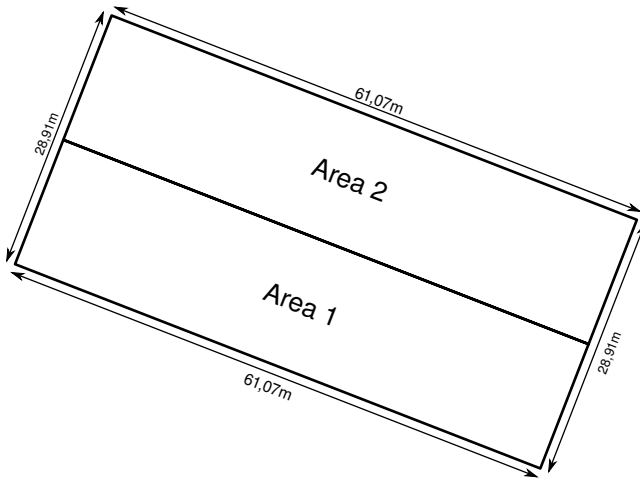
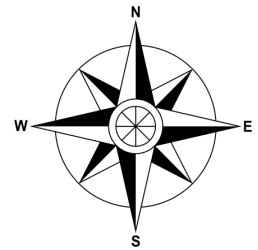
Notes: The results in this project report can be based on default values. Please check if all values are correct.

Bill of Materials - Total project

Article no.	Description	Package Qty.	Building 1	Total Qty.
721550	Alu mid panel clamp alu profile 28-50mm	150	716	716
721552	End panel clamp alu profile 28-50mm	100	328	328
7269120	Alu trapezoidal profile L=120mm + EPDM	100	1.044	1.044
773225	Ss thin sheet screw M6x25mm	100	3.352	3.352
739059	Plastic end cap ValkPitched Trapezoidal - black	100	1.044	1.044

This drawing shows all the buildings of the total project including the different roof areas.

► Building 1



► Building information

Building name	: Building 1
Roof inclination	: 6 degrees
Ridge height	: 13,52 m

► Roof information

Roof type	: Gabled
Roof material	: Trapezoidal
Orientation	: South
CTC distance roof crowns	: 333 mm

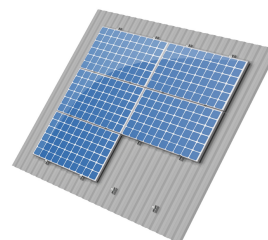


► System information

No. of panels south wall	: 209
Module	: Astro N7s
Measurements	: 1762 x 1134 x 30 mm
Panel weight	: 21,50 Kg
Module orientation	: Landscape
Edge zone calculated	: 2,70 m
Roof edge offset	: 0,30 m
System choice	: Clamp
System colour	: Aluminium
Fasteners	: Screws

► System type

ValkPitched - Trapezoidal



► Weight information

Weight of panels	:	4.493,50 kg
Weight of mounting system	:	111,15 kg
Total weight	:	4.604,65 kg

► System dimensions

Subarea dimensions	:	837,97 m ²
System dimensions	:	419,90 m ²

Bill of Materials |

Building 1 - Area 1 - Subarea 1

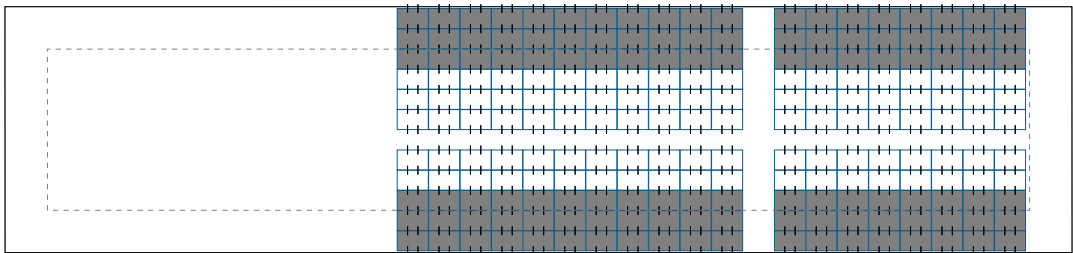
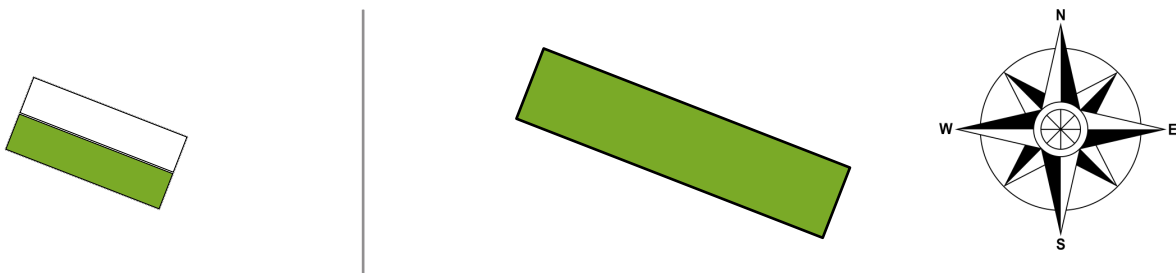
1.1.1

Project report
ValkPVplanner



The bill of materials shown in this page apply to materials needed for Building 1 - Area 1 - Subarea 1

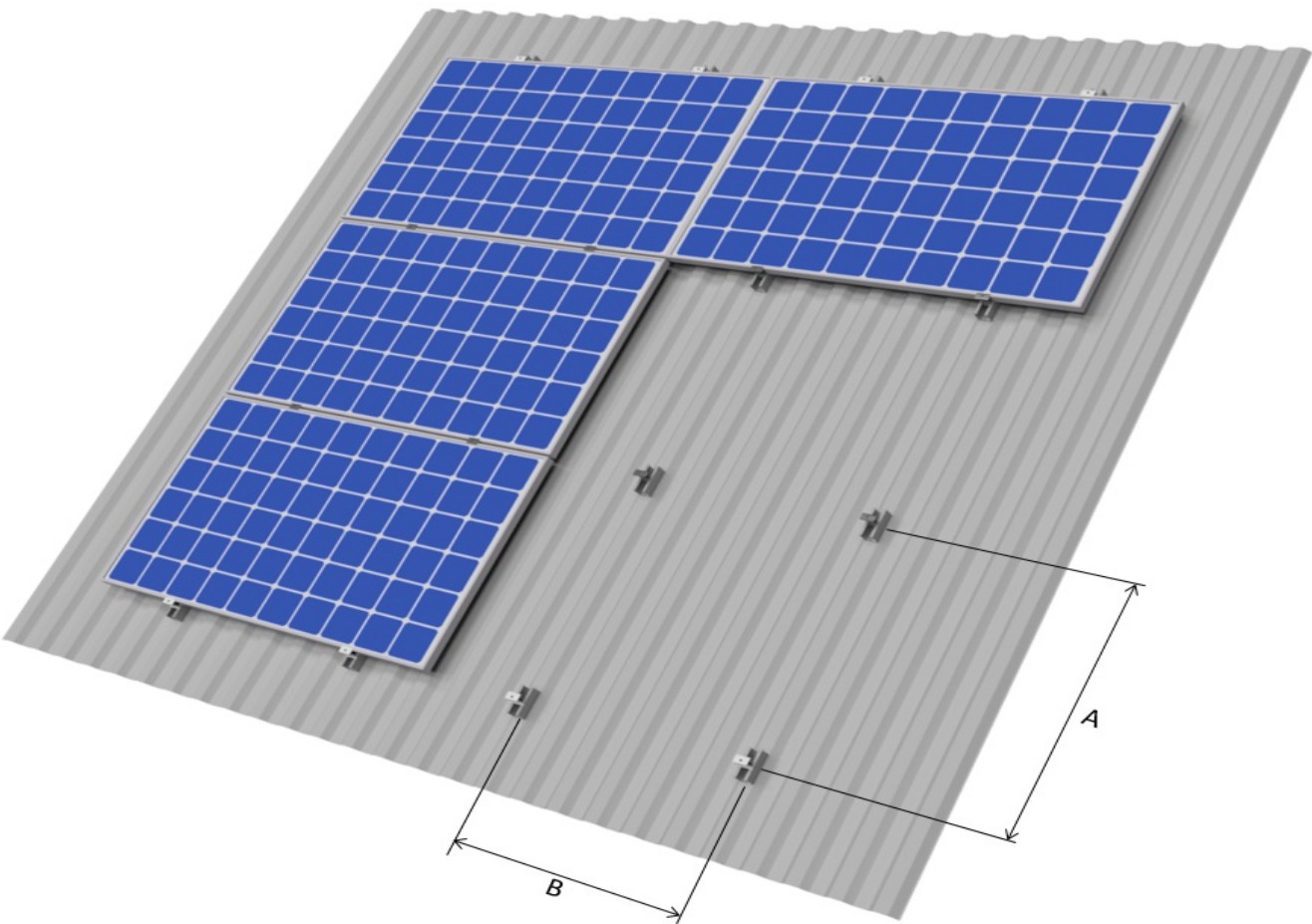
Article no.	Description	Package Qty.	Calc. Qty.	Extra Qty.	Total Qty.	Total weight
721550	Alu mid panel clamp alu profile 28-50mm	150	342	0	342	17,44
721552	End panel clamp alu profile 28-50mm	100	152	0	152	11,40
7269120	Alu trapezoidal profile L=120mm + EPDM	100	494	0	494	65,21
773225	Ss thin sheet screw M6x25mm	100	1.596	0	1.596	11,17
739059	Plastic end cap ValkPitched Trapezoidal - black	100	494	0	494	5,93
Total weight						111,15 kg



Trapezoidal profile 120mm

Type	explanation	image
	Grey coloured panel Profiles mounted with 4 screws / rivets each	
	White coloured panel Profiles mounted with 2 screws / rivets each	

-  Edge zone calculated : 2,70 m
-  Roof edge offset : 0,30 m
-  Dilatation line



Dimension type	Value
Dimension A Vertical C.T.C. distance between the profiles	1144 mm
Dimension B Horizontal C.T.C. distance between the profiles	979 mm

This image shows a standard set-up of a landscape - short system, to indicate where the dimensions in the table are referring to.

► Building information

Building name	: Building 1
Roof inclination	: 6 degrees
Ridge height	: 13,52 m

► Roof information

Roof type	: Gabled
Roof material	: Trapezoidal
Orientation	: South
CTC distance roof crowns	: 333 mm

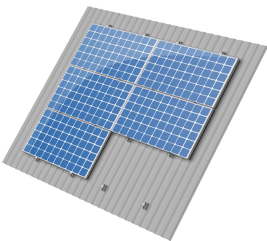


► System information

No. of panels south wall	: 231
Module	: Astro N7s
Measurements	: 1762 x 1134 x 30 mm
Panel weight	: 21,50 Kg
Module orientation	: Landscape
Edge zone calculated	: 2,70 m
Roof edge offset	: 0,30 m
System choice	: Clamp
System colour	: Aluminium
Fasteners	: Screws

► System type

ValkPitched - Trapezoidal



► Weight information

Weight of panels	:	4.966,50 kg
Weight of mounting system	:	123,77 kg
Total weight	:	5.090,27 kg

► System dimensions

Subarea dimensions	:	837,96 m ²
System dimensions	:	464,10 m ²

Bill of Materials |

Building 1 - Area 2 - Subarea 1

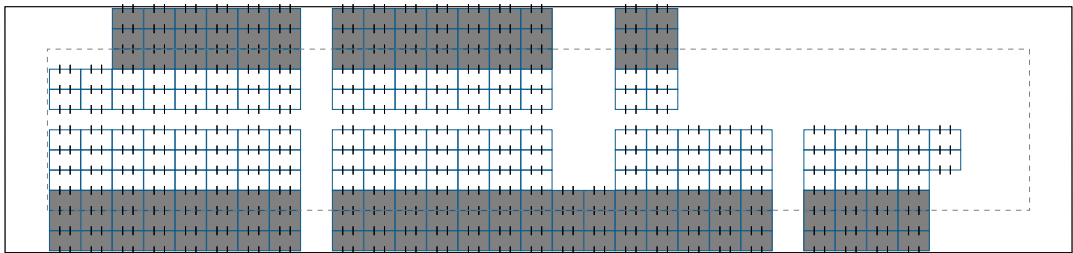
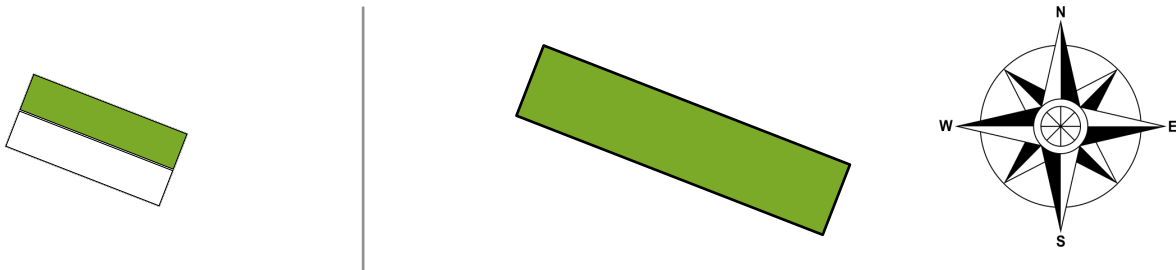
1.2.1

Project report
ValkPVplanner



The bill of materials shown in this page apply to materials needed for Building 1 - Area 2 - Subarea 1

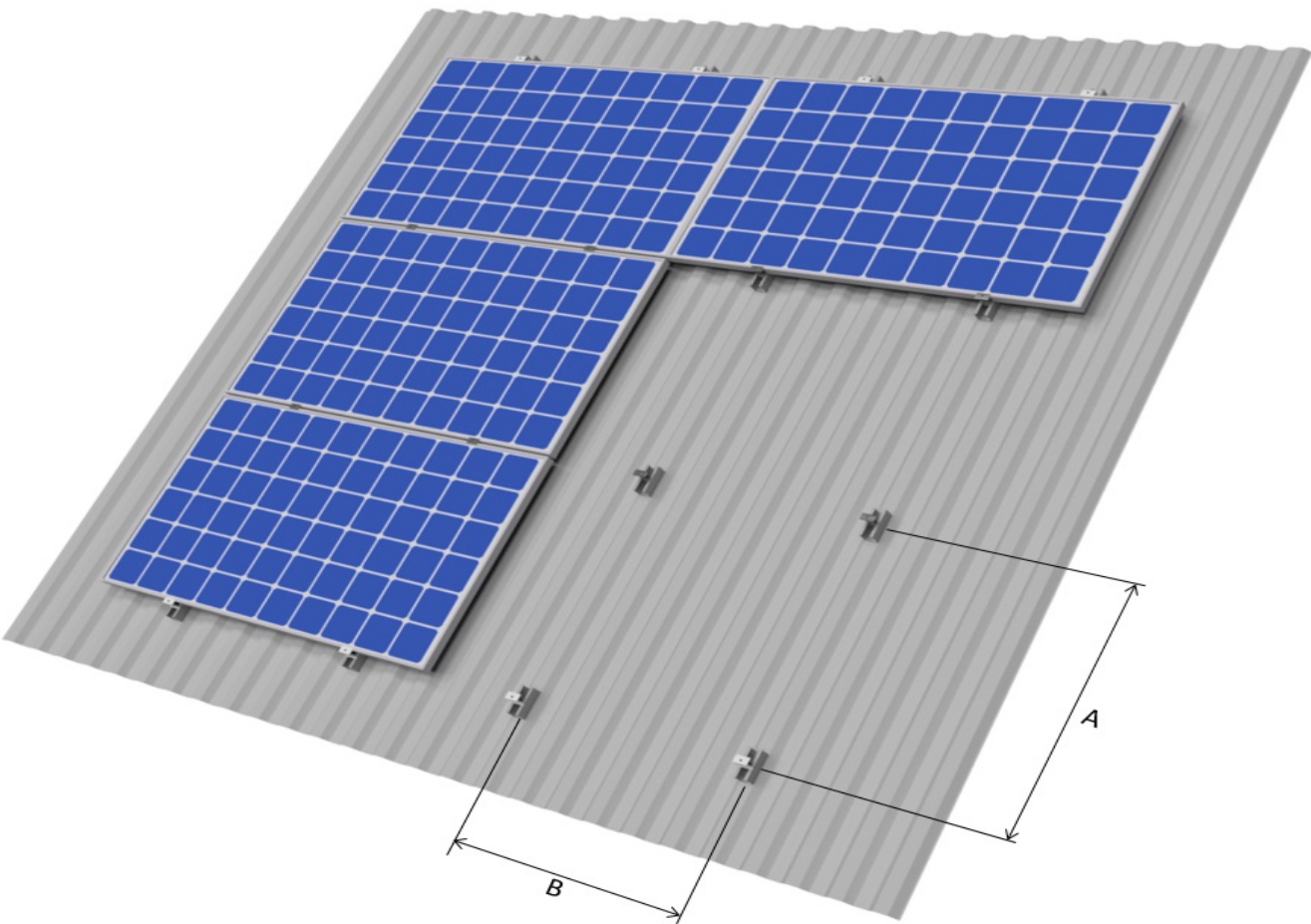
Article no.	Description	Package Qty.	Calc. Qty.	Extra Qty.	Total Qty.	Total weight
721550	Alu mid panel clamp alu profile 28-50mm	150	374	0	374	19,07
721552	End panel clamp alu profile 28-50mm	100	176	0	176	13,20
7269120	Alu trapezoidal profile L=120mm + EPDM	100	550	0	550	72,60
773225	Ss thin sheet screw M6x25mm	100	1.756	0	1.756	12,29
739059	Plastic end cap ValkPitched Trapezoidal - black	100	550	0	550	6,60
Total weight						123,77 kg



Trapezoidal profile 120mm

Type	explanation	image
	Grey coloured panel Profiles mounted with 4 screws / rivets each	
	White coloured panel Profiles mounted with 2 screws / rivets each	

-  Edge zone calculated : 2,70 m
-  Roof edge offset : 0,30 m
-  Dilatation line



Dimension type	Value
Dimension A Vertical C.T.C. distance between the profiles	1144 mm
Dimension B Horizontal C.T.C. distance between the profiles	979 mm

This image shows a standard set-up of a landscape - short system, to indicate where the dimensions in the table are referring to.

All solar mounting systems of Van der Valk Solar Systems have been designed, calculated and manufactured according to Eurocodes and NEN 7250 regulations and its derivatives (listed below). These regulations have been used for the calculations in the Project Report. Van der Valk Solar Systems meets the applicable CE requirements regarding 2001/95/EG product safety and the applicable sections of BRL9931, components for solar systems. Van der Valk Solar Systems pitched roof clamp systems are MCS012 approved (MCS BBA 0159).

- **EN 1990 Base of Structural design**

National Annexes:

- BS EN 1990:2002+A1:2005
- DIN EN 1990/NA/A1
- IS-EN 1990:2002+A1:2005
- NBN EN 1990 ANB
- NEN-EN 1990+A1+A1/C2/NB
- NS-EN 1990:2002/NA:2008+A1:2010
- PN-EN 1990:2004/NA
- SFS-EN 1990/A1/AC
- SS-EN 1990/A1:2005/AC:2010

- **EN 1991-1-3 Actions on structures / Snow load**

National Annexes:

- BS-EN 1991-1-3:2003
- DIN EN 1991-1-3/NA
- IS-EN 1991-1-3:2003
- NBN EN 1991-1-3 ANB
- NEN-EN 1991-1-3:2003
- NS-EN 1991-1-3:2003/NA:2008
- PN-EN 1991-1-3:2005/NA
- SFS-EN 1991-1-3/AC
- SS-EN 1991-1-3/A1:2015

- **EN 1991-1-4 Actions on structures / Wind load**

National Annexes:

- BS EN 1991-1-4:2005+A1:2010
- DIN EN 1991-1-4/NA
- IS-EN 1991-1-4:2005/NA:2013
- NBN EN 1991-1-4 ANB
- NEN-EN 1991-1-4:2005
- NS-EN 1991-1-4:2005/NA:2009
- PN-EN 1991-1-4:2008/NA
- SFS-EN 1991-1-4+AC+A1
- SS-EN 1991-1-4:2005/AC:2010

- **EN 1993-1-1 Design of steel structures / Rules for buildings**

- **N 1993-1-3 Design of steel structures / Rules for cold formed members**

- **EN 1997 Geotechnical design**

- **EN 1998-1 Design of structures / Seismic actions**

- **EN 1999-1-1 Design of aluminium structures**

- **NEN 7250 Solar systems - Integration in roofs and facades**

- **2001/95/EG Product safety**

- **BRL9931 Components of solar systems**

► Wind tunnel testing

Van der Valk Solar Systems have elaborated the results of wind tunnel studies in the product design and calculation tools for both flat and pitched roofs. The application and interpretation of the results have been checked thoroughly and match the assumption and findings as laid down in reports W15328-1ERA-002 (dated December 5th, 2016), W15328-2ERA-007 (dated September 9th, 2018) and W15328-3E-RA-003 (dated June 13th, 2018) for flat roofs and WA 15328-1E-RA-002 (dated December 22nd, 2016) for pitched roofs.

► Default values

- This project report is based on the input and results of the online calculation tool Carbon3 PVplanner. The results derived from this tool were calculated with the greatest possible care. Nonetheless, it is possible that some information might not be entirely correct as the results for each project report can be based on default values. Please check carefully if all values are correct.

► Safety instructions

- This Carbon3 PVplanner project report is complementary to the Valk Solar Systems installation manuals, which show how to install the Van der Valk solar mounting system.
- The instructions provided in this Carbon3 PVplanner project report must be observed at all times.
- All structural, safety and building regulations currently applicable must be observed.
- Solar mounting systems installed on roofs can be exposed to wind and snow conditions. This will result in additional pressure load of the installed PV system on the roof and building. A design calculation must be used to establish whether or not the roof and building, will be able to withstand the extra pressure load. Where necessary, modifications need to be made.
- To prevent flat roof systems from moving, lift or tip over, the system needs to be either fixed to the roof or weighed-up by ballast. The ballast calculated in this project report is of critical importance to ensure that the mounting system can be placed and used safely on the roof(s) in subject for this project report.
- Flat roof systems placed on a roof with an inclination of 5 degrees or more must be fixed to the roof.
- Restrictions apply for the position of the solar system on a roof. The solar panels must be placed at a the recommended distance from the roof edge, as shown in this project report.

► Warranty

- Standard warranty for pitched roof, flat roof and ground mount systems is 10 years. This can be extended under certain conditions.
- The warranty provided is subject to the warranty conditions stated in the general terms and conditions supplied by Van der Solar Systems BV. Our terms and conditions can be found on our website: www.valksolarsystems.nl.

► Disclaimer

- Van der Valk Solar Systems B.V. does not accept any liability for any direct and/or indirect consequences of any act (or omission) ensuing from the information or the failure to observe the instructions provided in this project report and the installation manual, nor for possible incorrect use of the Carbon3 PVplanner by the customer.
- The calculations do not take into account obstacles in the near surrounding like high buildings, cliffs and mountains.
- For the full disclaimer of the Carbon3 PVplanner, please visit our website. : www.valksolarsystems.nl.

► Contact

- If you have any questions about the Carbon3 PVplanner, calculation results or this project report: please contact the Van der Valk Solar Systems team.

Project Name: Brookvale Depot PV

25/09/2025

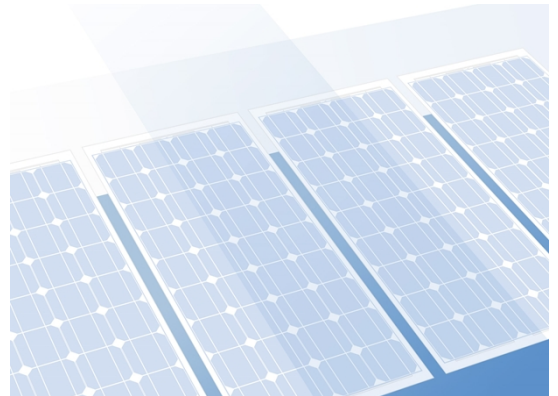
Documentation

Customer Details

Company	
Customer Number	
Contact person	
Address	105 Springhead Rd, Northfleet, Gravesend DA11 8HW
Phone	
Fax	
E-Mail	

Project Data

Project Name	Brookvale Depot PV
Offer no.	
Project Designer	ROHIT MANDAVKAR
Address	105 Springhead Rd, Northfleet, Gravesend DA11 8HW



Brookvale Depot PV

Project Designer: ROHIT MANDAVKAR

Project Overview

PV System

Grid-connected PV System

Climate Data	Gravesend Broadnes, GBR (2001 - 2020)
Values source	Meteonorm 8.2
PV Generator Output	198 kWp
PV Generator Surface	879.2 m²
Number of PV Modules	440
Number of Inverters	2

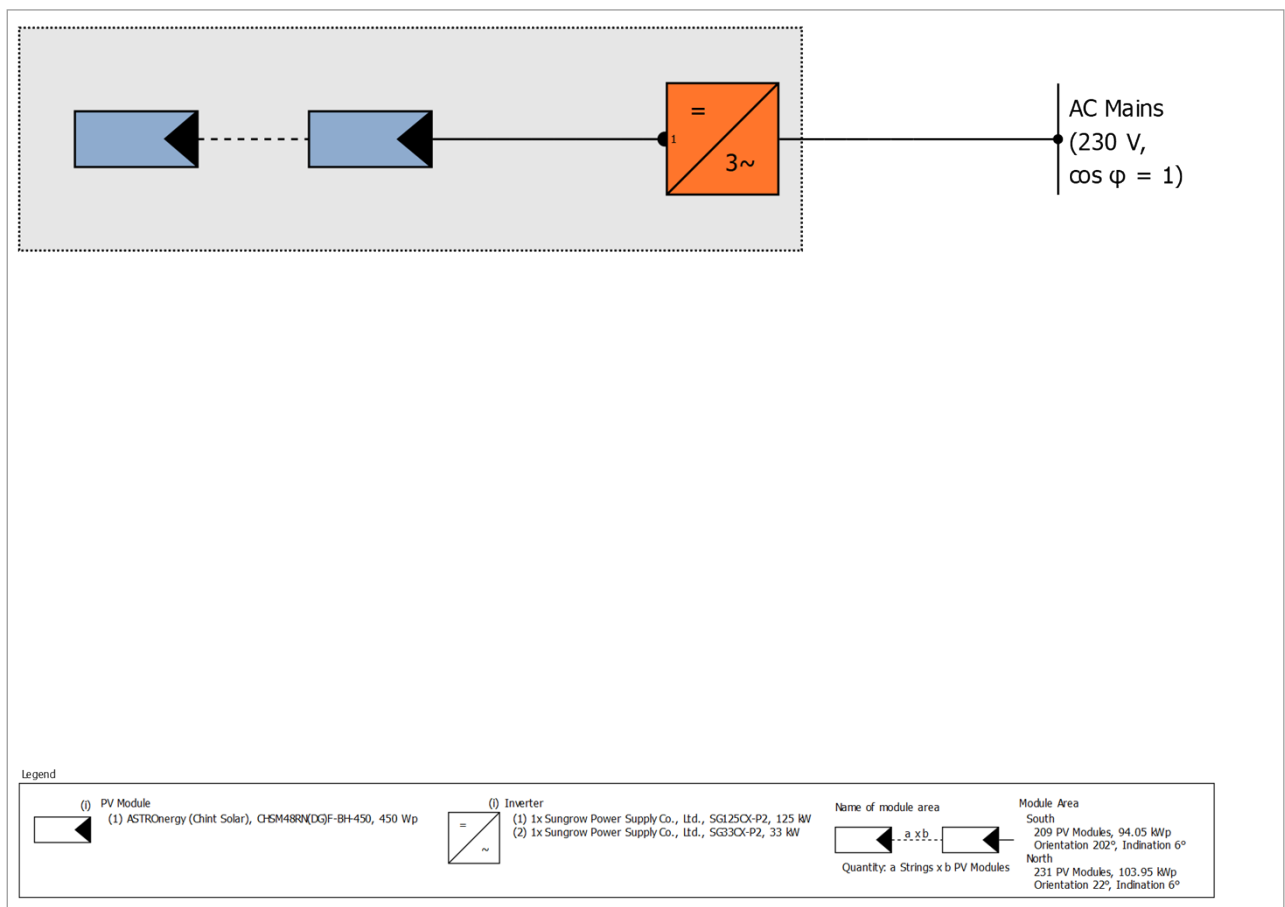


Figure: Schematic diagram

Brookvale Depot PV

Project Designer: ROHIT MANDAVKAR

Production Forecast

Production Forecast

PV Generator Output	198.00 kWp
Spec. Annual Yield	795.63 kWh/kWp
Performance Ratio (PR)	85.57 %
Grid Export	157,574 kWh/Year
Grid Export in the first year (incl. module degradation)	157,152 kWh/Year
Standby Consumption (Inverter)	39 kWh/Year
CO ₂ Emissions avoided	59,863 kg / year

The results have been calculated with a mathematical model calculation from Valentin Software GmbH (PV*SOL algorithms). The actual yields from the solar power system may differ as a result of weather variations, the efficiency of the modules and inverter, and other factors.



Set-up of the System

Overview

System Data

Type of System	Grid-connected PV System
Start of Operation	16/09/2025

Climate Data

Location	Gravesend Broadnes, GBR (2001 - 2020)
Values source	Meteonorm 8.2
Data resolution	1 h
Simulation models used:	
- Diffuse Irradiation onto Horizontal Plane	Hofmann
- Irradiance onto tilted surface	Hay & Davies

Module Areas

1. Module Area - South

PV Generator, 1. Module Area - South

Name	South
PV Modules	209 x CHSM48RN(DG)F-BH-450 (v1)
Manufacturer	ASTROnergy (Chint Solar)
Inclination	6 °
Orientation	South 202 °
Installation Type	Roof parallel
PV Generator Surface	417.6 m ²

Shading, 1. Module Area - South

Shading	10 %
---------	------

Brookvale Depot PV

Project Designer: ROHIT MANDAVKAR

Degradation of Module, 1. Module Area - South

Characteristic curve

Linear (straight line)

Remaining power (power output) after 30 years

88 %

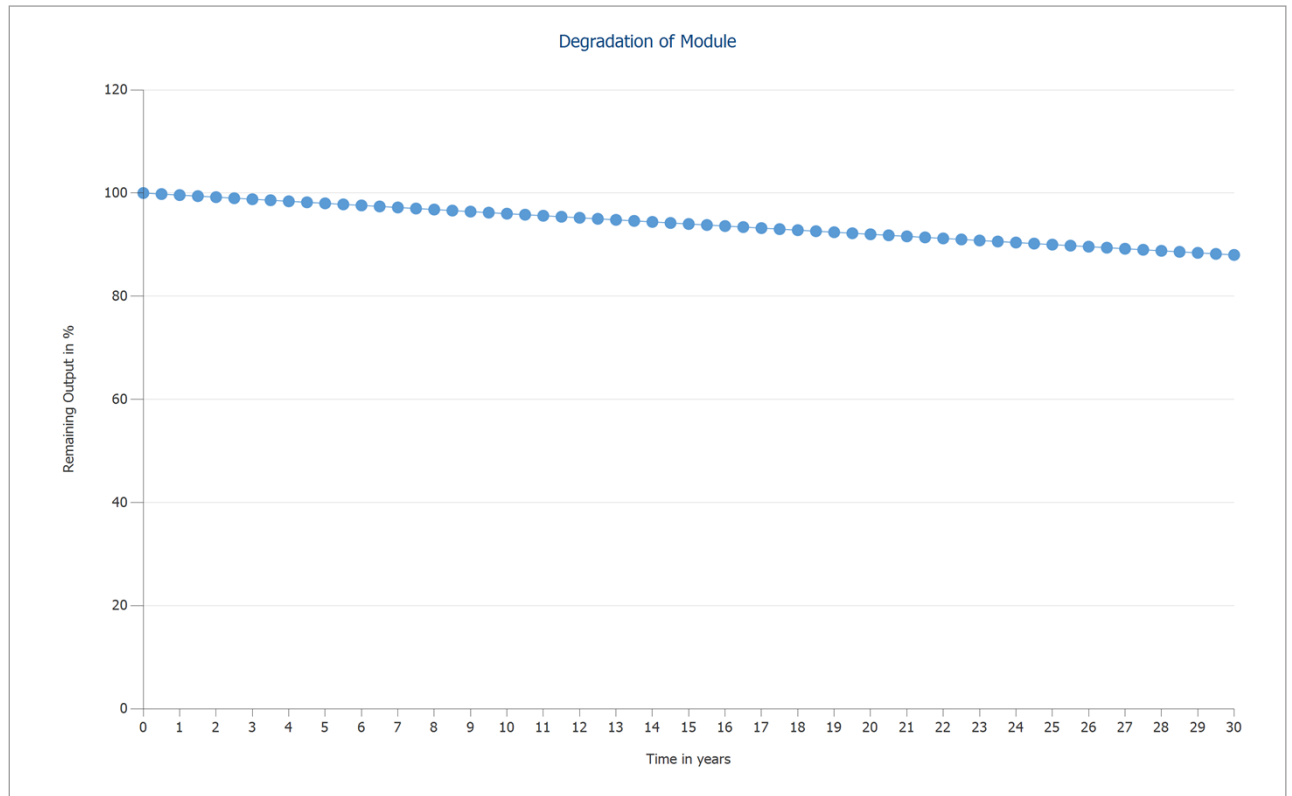


Figure: Degradation of Module, 1. Module Area - South

2. Module Area - North

PV Generator, 2. Module Area - North

Name	North
PV Modules	231 x CHSM48RN(DG)F-BH-450 (v1)
Manufacturer	ASTROnergy (Chint Solar)
Inclination	6 °
Orientation	North 22 °
Installation Type	Roof parallel
PV Generator Surface	461.6 m²

Shading, 2. Module Area - North

Shading	10 %
---------	------

Brookvale Depot PV

Project Designer: ROHIT MANDAVKAR

Degradation of Module, 2. Module Area - North

Characteristic curve

Linear (straight line)

Remaining power (power output) after 30 years

88 %

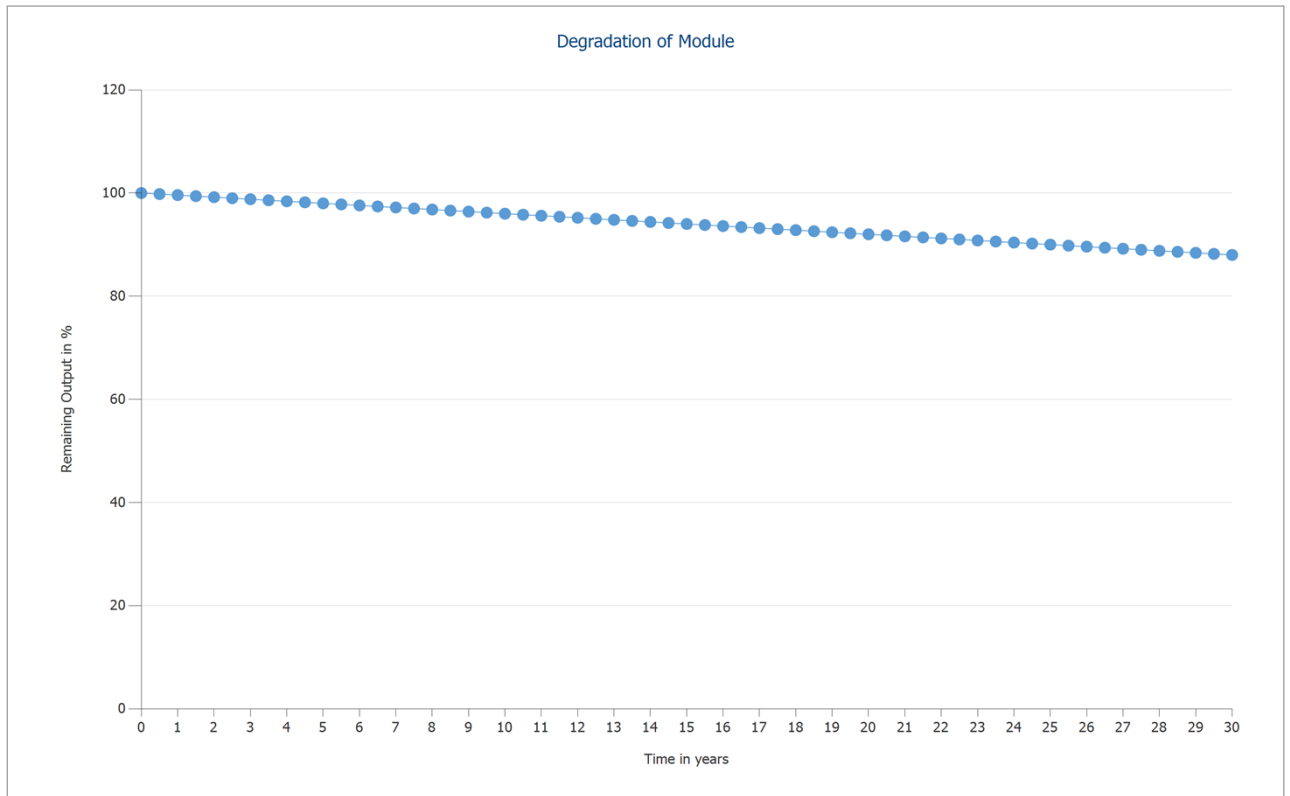


Figure: Degradation of Module, 2. Module Area - North

Brookvale Depot PV

Project Designer: ROHIT MANDAVKAR

Inverter configuration

Configuration 1

Module Areas	South + North
Inverter 1	
Model	SG125CX-P2 (v18)
Manufacturer	Sungrow Power Supply Co., Ltd.
Quantity	1
Sizing Factor	127.4 %
Configuration	MPP 1: 2 x 20
	MPP 2: 2 x 20
	MPP 3: 2 x 20
	MPP 4: 2 x 20
	MPP 5: 2 x 15
	MPP 6: 2 x 20
	MPP 7: 2 x 13
	MPP 8: 1 x 19
	MPP 9: 1 x 20
	MPP 10: 1 x 20
	MPP 11: 1 x 20
	MPP 12: 1 x 19

Inverter 2

Model	SG33CX-P2 (v16)
Manufacturer	Sungrow Power Supply Co., Ltd.
Quantity	1
Sizing Factor	117.3 %
Configuration	MPP 1: 2 x 20
	MPP 2: 2 x 15
	MPP 3: 1 x 16

AC Mains

AC Mains

Number of Phases	3
Mains voltage between phase and neutral	230 V
Displacement Power Factor (cos phi)	+/- 1

Simulation Results

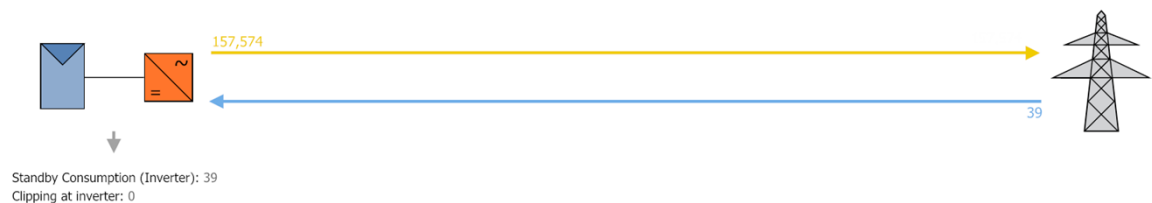
Results Total System

PV System

PV Generator Output	198.00 kWp
Spec. Annual Yield	795.63 kWh/kWp
Performance Ratio (PR)	85.57 %
Grid Export	157,574 kWh/Year
Grid Export in the first year (incl. module degradation)	157,152 kWh/Year
Standby Consumption (Inverter)	39 kWh/Year
CO ₂ Emissions avoided	59,863 kg / year

Energy Flow Graph

Project: Brookvale Depot PV



All values in kWh
Small deviations in the totals can occur due to rounding
created with PV*SOL

Figure: Energy flow

Brookvale Depot PV

Project Designer: ROHIT MANDAVKAR

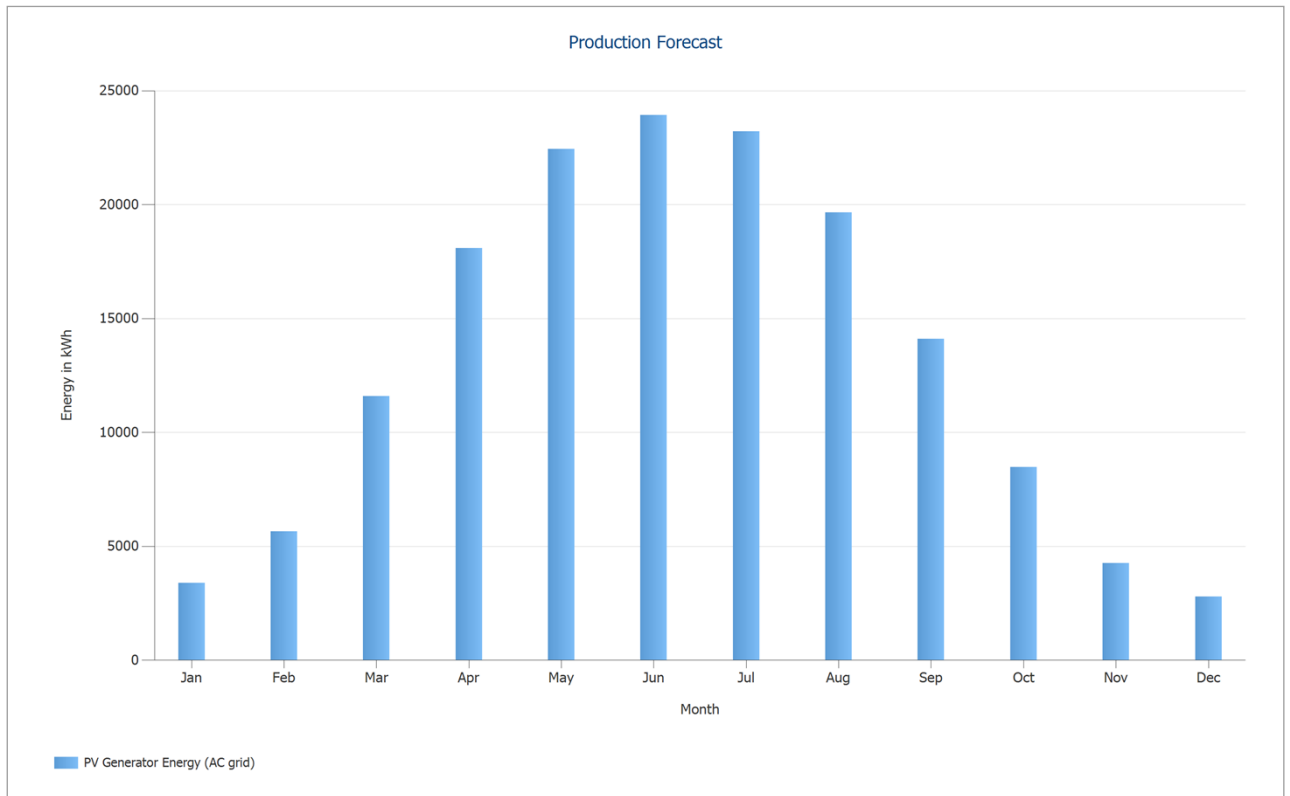


Figure: Production Forecast

Results per Module Area

South

PV Generator Output	94.05 kWp
PV Generator Surface	417.60 m ²
Global Radiation at the Module	973.53 kWh/m ²
Global Radiation on Module without reflection	973.53 kWh/m ²
Performance Ratio (PR)	85.57 %
PV Generator Energy (AC grid)	78332.89 kWh/Year
Spec. Annual Yield	832.89 kWh/kWp

North

PV Generator Output	103.95 kWp
PV Generator Surface	461.56 m ²
Global Radiation at the Module	890.51 kWh/m ²
Global Radiation on Module without reflection	890.51 kWh/m ²
Performance Ratio (PR)	85.61 %
PV Generator Energy (AC grid)	79240.70 kWh/Year
Spec. Annual Yield	762.30 kWh/kWp

PV System Energy Balance

PV System Energy Balance

Global radiation - horizontal	1,049.93 kWh/m²	
Deviation from standard spectrum	-10.50 kWh/m ²	-1.00 %
Ground Reflection (Albedo)	0.57 kWh/m ²	0.05 %
Orientation and inclination of the module surface	-6.73 kWh/m ²	-0.65 %
Shading	-103.33 kWh/m ²	-10.00 %
Reflection on the Module Surface	0.00 kWh/m ²	0.00 %
Irradiance on the rear side of the module	0.00 kWh/m ²	0.00 %
Global Radiation at the Module	929.94 kWh/m²	
	929.94 kWh/m ²	
	x 879.168 m ²	
	= 817,577.28 kWh	
Global PV Radiation	817,577.28 kWh	
Bifaciality (80 % of back irradiance)	0.00 kWh	0.00 %
Soiling	0.00 kWh	0.00 %
STC Conversion (Rated Efficiency of Module 22.52 %)	-633,470.48 kWh	-77.48 %
Rated PV Energy	184,106.79 kWh	
Low-light performance	28.86 kWh	0.02 %
Deviation from the nominal module temperature	-933.65 kWh	-0.51 %
Diodes	-916.01 kWh	-0.50 %
Mismatch (Manufacturer Information)	-3,645.72 kWh	-2.00 %
Mismatch (Configuration/Shading)	0.00 kWh	0.00 %
PV Energy (DC) without inverter clipping	178,640.28 kWh	
Failing to reach the DC start output	-0.07 kWh	0.00 %
Clipping on account of the MPP Voltage Range	0.00 kWh	0.00 %
Clipping on account of the max. DC Current	0.00 kWh	0.00 %
Clipping on account of the max. DC Power	0.00 kWh	0.00 %
Clipping on account of the max. AC Power/cos phi	-6.03 kWh	0.00 %
MPP Matching	-22.07 kWh	-0.01 %
PV energy (DC)	178,612.10 kWh	
Energy at the Inverter Input	178,612.10 kWh	
Input voltage deviates from rated voltage	-5.78 kWh	0.00 %
DC/AC Conversion	-3,524.56 kWh	-1.97 %
Standby Consumption (Inverter)	-38.92 kWh	-0.02 %
Total Cable Losses	-17,508.18 kWh	-10.00 %
PV energy (AC) minus standby use	157,534.67 kWh	
PV Generator Energy (AC grid)	157,573.59 kWh	

Data Sheets

PV Module Data Sheet

PV Module: CHSM48RN(DG)F-BH-450 (v1)

Manufacturer	ASTROnergy (Chint Solar)
Available	Yes

Electrical Data

Cell Type	Si monocrystalline
Half-cell module	Yes
Cell Count	96
Number of Bypass Diodes	3
Loss voltage per bypass diode	1 V
Integrated power optimizer	No
Only Transformer Inverters suitable	No

I/V Characteristics at STC

MPP Voltage	30.33 V
MPP Current	14.84 A
Open Circuit Voltage	36.42 V
Short-Circuit Current	15.68 A
Increase open circuit voltage before stabilisation	0 %
Nominal output	450 W
Fill Factor	78.81 %
Efficiency	22.52 %

I/V Part Load Characteristics

Values source	Manufacturer/user-created
Irradiance	200 W/m ²
Voltage in MPP at Part Load	29.93 V
Current in MPP at Part Load	2.999 A
Open Circuit Voltage (Part Load)	34.459 V
Short Circuit Current at Part Load	3.135 A

Additional Parameters

Temperature Coefficient of Voc	-140 mV/K
Temperature Coefficient of Isc	6.74 mA/K
Temperature Coefficient of Pmpp	-0.29 %/K
Incident Angle Modifier (IAM)	100 %
Bifacial factor	80 %
Maximum System Voltage	1500 V

Mechanical Data

Width	1134 mm
Height	1762 mm
Depth	30 mm
Frame Width	28 mm
Weight	24.5 kg

Inverter Data Sheet

Inverter: SG125CX-P2 (v18)

Manufacturer	Sungrow Power Supply Co., Ltd.
Available	Yes
Electrical data - DC	
DC nominal output	125 kW
Max. DC Power	175 kW
Nom. DC Voltage	600 V
Max. Input Voltage	1100 V
Max. Input Current	360 A
Max. short circuit current	418 A
Number of DC Inlets	24
Electrical data - AC	
AC Power Rating	125 kW
Max. AC Power	125 kVA
Nom. AC Voltage	230 V
Number of Phases	3
With Transformer	No
Electrical data - other	
Change in Efficiency when Input Voltage deviates from Rated Voltage	0.02 %/100V
Min. Feed-in Power	20 W
Standby Consumption	4 W
Night Consumption	4 W
MPP Tracker	
Output Range < 20% of Power Rating	99.9 %
Output Range > 20% of Power Rating	100 %
Count of MPP Trackers	12
MPP Tracker 1-12	
Max. Input Current	30 A
Max. short circuit current	35 A
Max. Input Power	24 kW
Min. MPP Voltage	200 V
Max. MPP Voltage	850 V

Brookvale Depot PV

Project Designer: ROHIT MANDAVKAR

Inverter: SG33CX-P2 (v16)

Manufacturer	Sungrow Power Supply Co., Ltd.
Available	Yes

Electrical data - DC

DC nominal output	33 kW
Max. DC Power	46.2 kW
Nom. DC Voltage	600 V
Max. Input Voltage	1100 V
Max. Input Current	90 A
Max. short circuit current	105 A
Number of DC Inlets	6

Electrical data - AC

AC Power Rating	33 kW
Max. AC Power	36.3 kVA
Nom. AC Voltage	230 V
Number of Phases	3
With Transformer	No

Electrical data - other

Change in Efficiency when Input Voltage deviates from Rated Voltage	0.02 %/100V
Min. Feed-in Power	20 W
Standby Consumption	4 W
Night Consumption	4 W

MPP Tracker

Output Range < 20% of Power Rating	99.9 %
Output Range > 20% of Power Rating	100 %
Count of MPP Trackers	3

MPP Tracker 1-3

Max. Input Current	30 A
Max. short circuit current	35 A
Max. Input Power	24 kW
Min. MPP Voltage	200 V
Max. MPP Voltage	850 V

Circuit Diagram

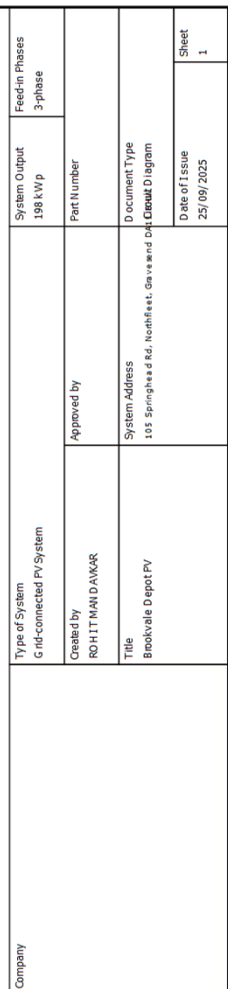


Figure: Circuit Diagram

Brookvale Depot PV

Project Designer: ROHIT MANDAVKAR

Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		ASTROnergy (Chint Solar)	CHSM48RN(DG)F-BH-450	440	Piece
2	Inverter		Sungrow Power Supply Co., Ltd.	SG125CX-P2	1	Piece
3	Inverter		Sungrow Power Supply Co., Ltd.	SG33CX-P2	1	Piece



ASTRONERGY



ASTRO N7s

CHSM54RNs(DG)/F-BH
Bifacial Series

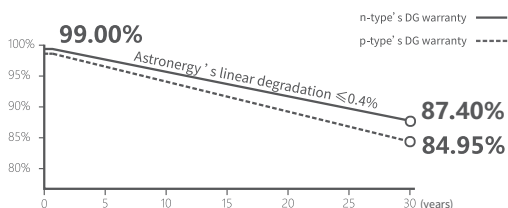
445~465W



Warranty

25 25-year Product Warranty

30 30-year Linear Power Warranty



n-type TOPCon 4.0

Novel upgrade, enhancing module efficiency



ZBB-TF (Tiling Film)

Zero-busbar integrated interconnection



Sleek Design

≤ 2 m² area, easy to transport and install



Integrated Appearance

Streamlined design without busbars or harpoon-like ribbons, perfect for upscale zero-carbon buildings



IEC 61215, IEC 61730
ISO 9001:2015:ISO Quality Management System
ISO 14001:2015:ISO Environment Management System
ISO 45001:Occupational Health and Safety
The first solar company which passed the Nord IEC/TS 62941 certification audit



Tier 1
BloombergNEF



445~465W

POWER RANGE

0~+3%

POWER SORTING

23.3%

MAX MODULE
EFFICIENCY

≤ 1.0%

FIRST YEAR
POWER DEGRADATION

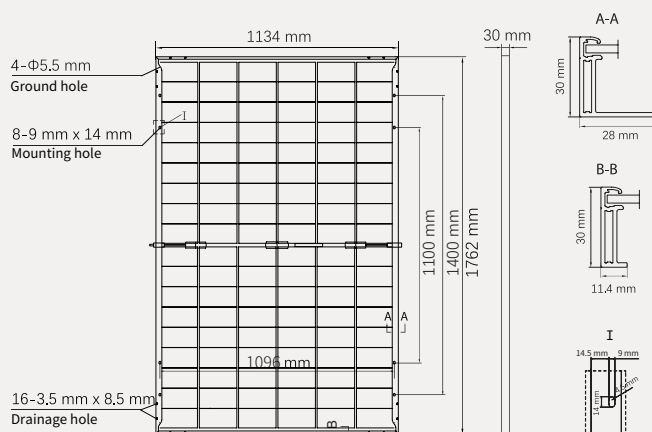
≤ 0.4%

YEAR 2-30
POWER DEGRADATION

Mechanical Specifications

Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell type	n-type mono-crystalline
No. of cells	108 (6*18)
Frame technology	Aluminum, black or silver anodized
Front / Back glass	1.6+1.6 mm
Cable length (Including connector)	Portrait: (+)350 mm, (-)250 mm; Customized length
Cable diameter (IEC/UL)	4 mm ² / 12 AWG
① Maximum mechanical test load	5400 Pa (front) / 2400 Pa (back)
Connector type (IEC/UL)	HCB40 (Standard) / MC4-EVO2A (Optional)
Module weight	21.5 kg
Packing unit	36 pcs / box
Weight of packing unit (for 40'HQ container)	820 kg
Modules per 40' HQ container	936 pcs (Subject to sales contract)

① Refer to Astronergy crystalline installation manual or contact technical department.
Maximum Mechanical Test Load=1.5×Maximum Mechanical Design Load.



Electrical Specifications

STC: Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (P _{mp} / Wp)	445	450	455	460	465
Rated voltage (V _{mp} / V)	32.77	32.94	33.11	33.28	33.45
Rated current (I _{mp} / A)	13.58	13.66	13.74	13.82	13.90
Open circuit voltage (V _{oc} / V)	39.00	39.20	39.40	39.60	39.80
Short circuit current (I _{sc} / A)	14.26	14.35	14.44	14.52	14.60
Module efficiency	22.3%	22.5%	22.8%	23.0%	23.3%

NMOT: Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (P _{mp} / Wp)	334.6	338.4	342.2	345.9	349.7
Rated voltage (V _{mp} / V)	30.85	31.01	31.16	31.32	31.48
Rated current (I _{mp} / A)	10.85	10.91	10.98	11.04	11.11
Open circuit voltage (V _{oc} / V)	37.04	37.23	37.42	37.61	37.80
Short circuit current (I _{sc} / A)	11.51	11.58	11.65	11.72	11.79

Electrical Specifications (Integrated power)

P _{mp} gain	P _{mp} / Wp	V _{mp} / V	I _{mp} / A	V _{oc} / V	I _{sc} / A
5%	478	33.39	14.31	39.40	15.16
10%	501	33.39	14.99	39.40	15.88
15%	523	33.39	15.67	39.40	16.60
20%	546	33.39	16.35	39.40	17.32
25%	569	33.39	17.03	39.40	18.04

Electrical characteristics with different rear power gain (reference to 455W)

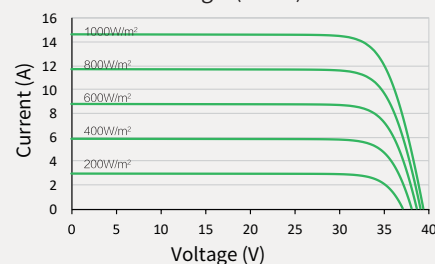
Temperature Ratings (STC)

Operating Parameters

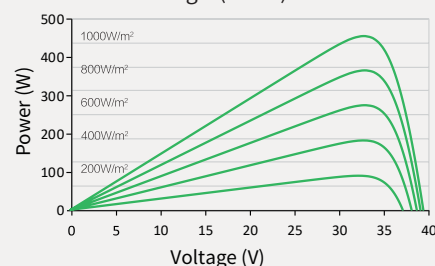
Temperature coefficient (P _{mp})	-0.29%/°C	No. of diodes	3
Temperature coefficient (I _{sc})	+0.043%/°C	Junction box IP rating	IP 68
Temperature coefficient (V _{oc})	-0.25%/°C	Max. series fuse rating	30 A
Nominal module operating temperature (NMOT)	41±2°C	Max. system voltage (IEC/UL)	1500V _{DC}

Curve

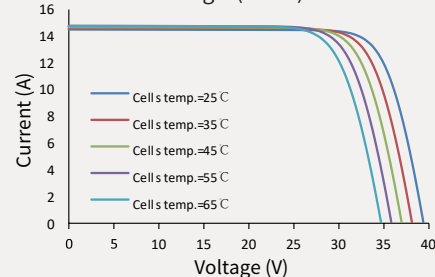
Current-Voltage (455W)



Power-Voltage (455W)



Current-Voltage (455W)



SG125CX-P2

Multi-MPPT String Inverter for 1000 Vdc System



HIGH YIELD

- 12 MPPTs with max. efficiency 98.5%
- DC 15A current input, compatible with over 500W+ PV module
- Dynamic shading optimization mode



SMART O&M

- Key component diagnosis and protection
- Smart IV Curve Diagnosis
- Grid fault record function, easy for remote O&M



LOWER INVESTMENT

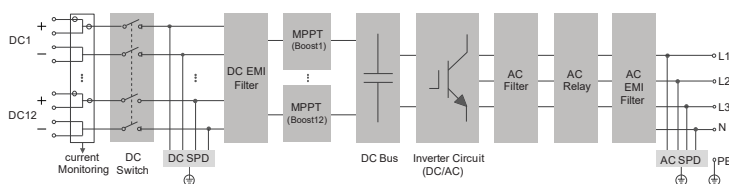
- Compatible max. 240mm² Al AC cables
- Drawer-style cable sealing plate support AC cable pre-assembly



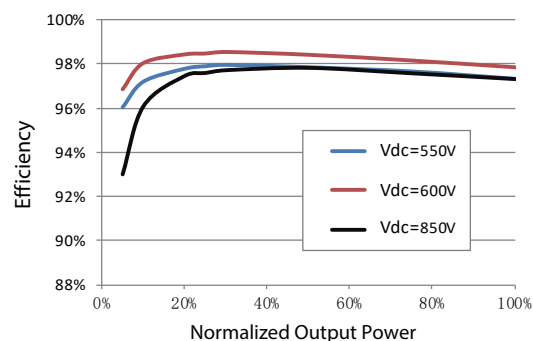
PROVEN SAFETY

- IP66 protection and C5 Anti-corrosion
- DC Type I+II SPD, AC Type II SPD
- Support AFCI 2.0 function

CIRCUIT DIAGRAM



EFFICIENCY CURVE



Type designation	SG125CX-P2
Input (DC)	
Recommended max. PV input power	175 kW
Max. PV input voltage *	1100 V
Min. PV input voltage / Startup input voltage	180 V / 200 V
Rated PV input voltage	600 V
MPPT voltage range **	180 V – 1000 V
No. of independent MPP inputs	12
No. of PV strings per MPPT	2
Max. PV input current	360 A (30 A * 12)
Max. DC short-circuit current	480 A (40 A * 12)
Max. current for DC connector	30 A
Output (AC)	
Rated AC output power	125 kW
Max. AC output apparent power	125 kVA
Max. AC output current	181.1 A
Rated AC output current(at 230V)	181.1 A
Rated AC voltage	3 / N / PE, 220 V / 380 V; 230 V / 400 V
AC voltage range	320 V – 480 V
Rated grid frequency	50 Hz / 60 Hz
Grid frequency range	45 Hz – 55 Hz / 55 Hz – 65 Hz
Harmonic (THD)	< 3 % (at rated power)
Power factor at rated power / Adjustable power factor	> 0.99 / 0.8 leading – 0.8 lagging
Feed-in phases / AC connection	3 / 3-N-PE
Efficiency	
Max. efficiency / European efficiency	98.5% / 98.3%
Protection & function	
Grid monitoring	Yes
DC reverse polarity protection	Yes
AC short-circuit protection	Yes
Leakage current protection	Yes
Surge protection	DC Type I + II / AC Type II
Ground fault monitoring	Yes
DC switch	Yes
PV string current monitoring	Yes
Arc fault circuit interrupter (AFCI)	Yes
PID recovery function	Yes
Optimizer compatibility ***	Optional
RSD compatibility ***	Optional
General data	
Dimensions (W * H * D)	1020 mm * 795 mm * 360 mm
Weight	≤ 93 kg
Mounting method	Wall-mounting bracket
Topology	Transformerless
Degree of protection	IP66
Night power consumption	< 5 W
Corrosion	C5
Operating ambient temperature range	-30 °C - 60 °C
Allowable relative humidity range (non-condensing)	0 % - 100 %
Cooling method	Smart forced air cooling
Max. operating altitude	4000 m
Display	LED, Bluetooth+APP
Communication	RS485 / WLAN (optional) / Ethernet (optional)
DC connection type	EVO2 (Max. 6 mm ²)
AC connection type	OT / DT terminal (Max. 240 mm ²)
AC cable specification	Outside diameter 30 mm - 60 mm
Grid compliance	IEC 62109-1, EN/IEC 61000-6-1/2/3/4, IEC 61727, IEC 62116, EN 50549-1/2, UTE C15-712-1, VDE V 0126-1-1, VDE-AR-N 4105:2018, VFR 2019, NC RfG, G99, UNE 217002, NTS, CEI 0-21 2019, CEI0-16 2019, NRS-097-2-1, IEC 63027
Grid support	Q at night function, LVRT, HVRT, active & reactive power control and power ramp rate controlramp rate control

* Input voltage exceeding the MPPT operating voltage range triggers inverter protection

** Please refer to the user manual for the full load MPPT voltage range

*** For optimizer & RSD compatibility, please consult Sungrow before placing an order



SG33/50CX-P2

Multi-MPPT String Inverter for 1000 Vdc System



HIGH YIELD

- DC 30A current input, compatible with over 500Wp+ PV module
- Dynamic shading optimization mode
- Built-in PID recovery function



SMART O&M

- Key component diagnosis and protection
- Smart IV Curve Diagnosis
- Grid fault record function, easy for remote O&M



LOWER INVESTMENT

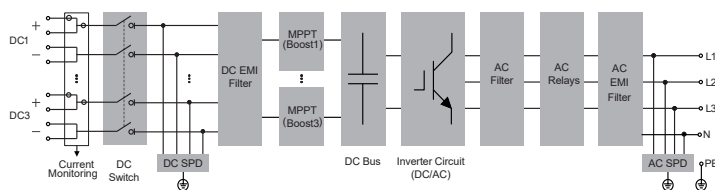
- Easy to handle thanks to 34% weight reduced
- Plug and Play with Buckle Design



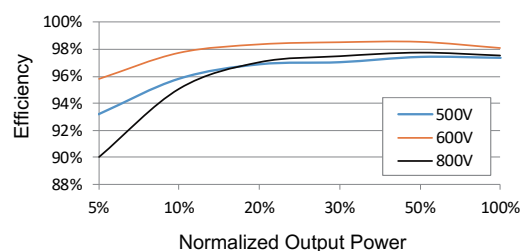
PROVEN SAFETY

- IP66 protection and C5 Anti-corrosion
- DC Type I+II SPD, AC Type II SPD
- Support AFCI 2.0 function

CIRCUIT DIAGRAM (SG33CX-P2)



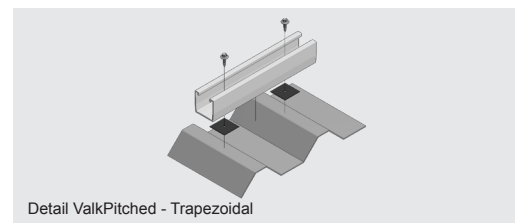
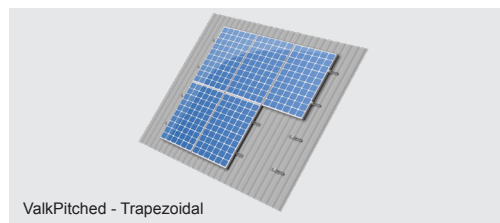
EFFICIENCY CURVE (SG33CX-P2)



Type designation	SG33CX-P2	SG50CX-P2
Input (DC)		
Recommended max. PV input power	46.2 kWp	70 kWp
Max. PV input voltage	1100 V	
Min. PV input voltage / Startup input voltage	160 V / 200 V	
Rated PV input voltage	600 V	
MPP voltage range	160 V - 1000 V	
No. of independent MPP inputs	3	4
No. of PV strings per MPPT	2	2
Max. PV input current	90 A (30 A * 3)	120 A (30 A * 4)
Max. DC short-circuit current	120 A (40 A * 3)	160 A (40 A * 4)
Max. current for DC connector	20 A	
Output (AC)		
Rated AC output power	33 kVA	50 kVA
Max. AC output apparent power	36.3 kVA ¹	55 kVA ¹
Max. AC output current	55.2 A	83.6 A
Rated AC output current(at 230V)	47.8 A	72.5 A
Rated AC voltage	3 / N / PE, 220 / 380 V, 230 / 400 V	
AC voltage range	312 - 480 V	
Rated grid frequency	50 Hz / 60 Hz	
Grid frequency range	45 – 55 Hz / 55 – 65 Hz	
Harmonic (THD)	< 3 % (at rated power)	
Power factor at rated power / Adjustable power factor	> 0.99 / 0.8 leading – 0.8 lagging	
Feed-in phases / connection phases	3 / 3-N-PE	
Efficiency		
Max. efficiency / European efficiency	98.5% / 98.3%	98.5% / 98.3%
Protection		
Grid monitoring	Yes	
DC reverse connection protection	Yes	
AC short-circuit protection	Yes	
Leakage current protection	Yes	
Surge protection	DC Type I+II / AC Type II	
Ground fault monitoring	Yes	
DC switch	Yes	
PV String current monitoring	Yes	
Arc fault circuit interrupter (AFCI)	Yes	
PID recovery function	Yes	
General Data		
Dimensions (W*H*D)	645*575*245 mm	
Mounting Method	Wall-mounting bracket	
Weight	38 kg	41 kg
Topology	Transformerless	
Degree of protection	IP66	
Corrosion	C5	
Night power consumption	< 5W	
Operating ambient temperature range	-30 to 60 °C	
Allowable relative humidity range (non-condensing)	0 – 100 %	
Cooling method	Smart forced air cooling	
Max. operating altitude	4000 m	
Display	LED, Bluetooth+APP	
Communication	RS485 / Optional: WLAN, Ethernet	
DC connection type	EVO2 (Max. 6 mm ²)	
AC connection type	OT terminal (16~35 mm ²)	OT or DT terminal (35~50 mm ²)
AC Cable specification	Outside diameter 18~38mm	
Grid Compliance	IEC 62109, IEC 61727, IEC 62116, VDE-AR-N 4105:2018, VDE AR-N 4110, IEC 61000-6-3, EN 50549-1, EN50549-2, CEI 0-21 2019, CEI0-16 2019, VDE 0126-1-1/A1 VFR 2019, UTE C15-712-1:2013, UNE 206007-1/RD 1699, UNE 217002, G99	
Grid Support	Q at night function, LVRT, HVRT, active & reactive power control and power ramp rate control	

¹ 33 kVA and 50 kVA for Germany, Belgium, Austria, Ukraine and Denmark





Datasheet ValkPitched - Trapezoidal

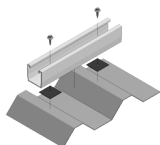
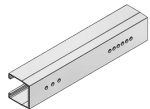
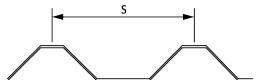
- Technische specificaties**
- Mounting system for pitched roofs fitted with trapezoidal or corrugated plates in steel or aluminum.
 - Fixation by use of thin sheet screw or rivet.
 - Minimum required width of crown when using steel plate screw: 20 mm.
 - Minimum crown width in case rivets are used: 25 mm.
 - Watertight seal by neoprene ring on the thin sheet screw and rubber plates.
 - Profiles equipped with pre-punched hole pattern and pre-pasted EPDM rubber.
 - Panels can be installed in both landscape and portrait configuration.

- ValkPitched - Trapezoidal vs competitive systems**
- Universal mid- and end-panel clamps (H 28-50 mm).
 - Thanks to the wide underside, profiles have a large bearing surface on the thin sheet material.
 - Very fast mounting.
 - Low costs due to minimal material requirement.

- Project calculation**
- With the help of the ValkPVplanner, projects can easily be calculated in accordance with the applicable standards and Eurocodes.

Article information

Profile lengths for portrait mounting		
Article numbers	Description	CtC (S)
Material type	EN AW 6060 (AlMgSi 0.5)	
7269280 *	Alu. trapezoidal profile L = 280 mm	120 - 200 mm
7269360 *	Alu. trapezoidal profile L = 360 mm	200 - 280 mm
7269440 *	Alu. trapezoidal profile L = 440 mm	280 - 360 mm
7269480 **	Alu. trapezoidal profile L = 480 mm	340 - 400 mm
701807000	Alu. trapezoidal profile L = 7000 mm	
Profile lengths for landscape mounting		
7269120 *	Alu trapezoidal profile L=120mm + EPDM	
Fixation material		
779223	Alu. rivet	see overleaf for more specifications
773225	SS thin sheet screw	see overleaf for more specifications
779220	Rubber plate	see overleaf for more specifications



* Note: the trapezoidal profiles are standard covered with EPDM rubber on the underside for a watertight seal.

** Minimum order quantity 20 pieces - no stock item.

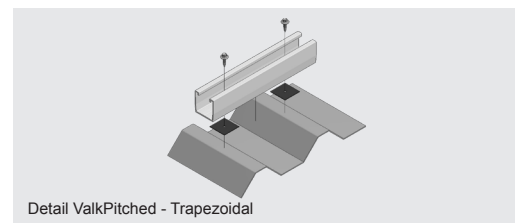
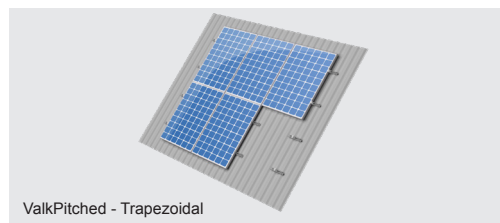
CONTACT DETAILS | DEVELOPER AND PRODUCER OF SOLAR MOUNTING SYSTEMS

Van der Valk Solar Systems + International
 Westernesse 18 - 2635 BG Den Hoorn, The Netherlands
 +31 174 25 49 99
sales@valksolarsystems.com

Valk Solar Systems UK + IE
 +44 1304 89 76 58
sales@valksolarsystems.co.uk

Valk Solar Systems Ibérica
 +34 910 787 616
ventas@valksolarsystems.es

Valk Solar Systems Nordics
 +46 8 55 82 86 26
sales@valksolarsystems.se



Datasheet ValkPitched - Trapezoidal

Specification table fixation material

Thin sheet screw		
Article number	773225	
Description	SS thin sheet screw with EPDM (E16) washer	
Size	6.0 x 25 mm	
Material	Bimetal (Stainless steel A2 / hardened steel)	
Plate thickness	Steel 0.35 - 1.25 mm and aluminium 0.5 - 1.5 mm	
Advice max. torque	Steel plate	> 0.8 mm = 3 Nm
	Steel plate	< 0.8 mm = 1 Nm
	Aluminium plate	> 0.8 mm = 1 Nm
	Aluminium plate	< 0.8 mm = 0.5 Nm
Processing speed from 1600 to 1800 rev / min until the sheet is penetrated. Then tighten the screw at a slow speed.		
Aluminium rivet*		
Article number	779223	
Description	Aluminium rivet with EPDM washer	
Size	6.3 x 23.4 mm	
Rivet	Ø 6.3 +/- 0.1 mm	
Head	Ø 14.4 +/- 0.3 mm	
Pin tail	Ø 3.9 mm x ≥ 25.4 mm	
Washer	EPDM	
Drill hole	6.5 mm incl. aluminium profile	
Clamp range	3.2 - 9.5 mm	
Plate thickness	Steel 0.35 - 1.25 mm en aluminium 0.5 - 1.5 mm	
Rubber plate		
Article number	779220	
Description	Rubber plate for trapezoidal profile	
Size	40 x 40 x 1 mm	
Material	EPDM 70 shore	
Central hole	Ø 5 mm	

Tool

Rivet pliers (example)		
Brand	Masterfix	
Type	MFX 260 - Rivet pliers with long legs for heavy use	
Capacity	Ø 3.0 - 6.4 mm stainless steel	
Body	ABS with steel parts	
Handle	Steel	
Length	500 mm	
Attachments	Nose pieces Ø 3.0- 6.4 mm	1 Collecting cup for the towing pin



* Not possible when using sandwich roofing panels.

CONTACT DETAILS | DEVELOPER AND PRODUCER OF SOLAR MOUNTING SYSTEMS

Van der Valk Solar Systems + International
 Westernesse 18 - 2635 BG Den Hoorn, The Netherlands
 +31 174 25 49 99
sales@valksolarsystems.com

Valk Solar Systems UK + IE
 +44 1304 89 76 58
sales@valksolarsystems.co.uk

Valk Solar Systems Ibérica
 +34 910 787 616
ventas@valksolarsystems.es

Valk Solar Systems Nordics
 +46 8 55 82 86 26
sales@valksolarsystems.se

SOLAR ENERGY CABLE



APPLICATION

Standard solar cable intended for the connection of solar panel arrays and similar equipment. Suitable for internal and external installations, Fixed, or within conduit. Our solar cable is manufactured in accordance to BS EN 50618 and meets harmonised code of H1Z2Z2-K.

CABLE STANDARDS

BS EN 50618

EN 50288-3-7

EN 60068-2-78

EN 50395

Halogen free to EN 50267 / IEC 60754

Smoke Density: light transmittance according to EN 50267 / IEC 61034

Flame retardant to IEC/EN 60332-1-2

Ozone and UV Resistant to EN 60811-403,

EN 50396 and EN ISO 4892-1/3,

Water Resistant to AD8

CONSTRUCTION

Conductor: Electrolytic annealed flexible tinned copper conductor (class 5)

Insulation: Cross Linked Halogen Free compound

Sheath: Cross Linked Halogen Free compound

Sheath Colour: ■ Black

CHARACTERISTICS

Nominal Voltage: 600V-1000V AC
1800V DC

HCl Content: <0.5%

pH: > 4.3

Conductivity: <10 IS/mm

Smoke Density: light transmittance: >60%

Test Voltage: 6.5kV AC

Temperature Limits

Ambient Temperature: -40 to 90°C

Maximum conductor temp: 120°C

Maximum short circuit temp: 250°C (max 5s)

Short Circuit temp: 250°C

Minimum Bending Radius:

As per cable manufacturer datasheet

Should not be installed at temperatures below 0°C

SOLAR ENERGY CABLE - DIMENSIONS

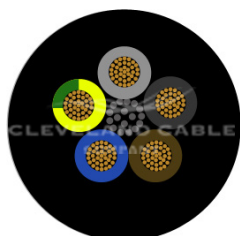
CCC CODE	CONDUCTOR SIZE (MM ²)	STRANDING (MM)	NO. OF CORES	WEIGHT (Kg/Km)	APPROX OVERALL DIAMETER (MM)
SOLAR1X1/5BK	1.5	30/0.25	1	40	4.90
SOLAR1X2/5BK	2.5	50/0.25	1	49	5.35
SOLAR1X4BK	4	56/0.30	1	66	6.00
SOLAR1X6BK	6	84/0.30	1	86	6.55
SOLAR1X10BK	10	80/0.40	1	132	7.60
SOLAR1X16BK	16	126/0.40	1	188	8.60
SOLAR1X25BK	25	196/0.40	1	294	10.80
SOLAR1X35BK	35	276/0.40	1	390	11.90
SOLAR1X50BK	50	396/0.40	1	540	14.00
SOLAR1X70BK	70	360/0.50	1	740	16.10
SOLAR1X95BK	95	475/0.50	1	965	17.50
SOLAR1X120BK	120	608/0.50	1	1210	19.50
SOLAR1X150BK	150	756/0.50	1	1495	21.80
SOLAR1X185BK	185	925/0.50	1	1885	25.00
SOLAR1X240BK	240	1221/0.50	1	2395	27.60

SOLAR ENERGY CABLE – CURRENT CARRYING CAPACITY / RESISTANCE

NOMINAL CROSS SECTIONAL AREA (MM ²)	ONE SINGLE CORE CABLE			MAXIMUM DC RESISTANCE AT 20°C	MAXIMUM DC RESISTANCE AT 90°C
	SINGLE CABLE IN FREE AIR	SINGLE CABLE FREE ON A SURFACE	TWO CABLES ADJACENT ON A SURFACE		
1.5	30	29	24	13.70	17.468
2.5	41	39	33	8.21	10.469
4	55	52	44	5.09	6.490
6	70	67	57	3.39	4.322
10	98	93	79	1.95	2.486
16	132	125	107	1.24	1.581
25	176	167	142	0.795	1.013
35	218	207	176	0.565	0.720
50	276	262	221	0.393	0.501
70	347	330	278	0.277	0.353
95	416	395	333	0.210	0.267
120	488	464	390	0.164	0.209
150	566	538	453	0.132	0.168
185	644	612	515	0.108	0.137
240	775	736	620	0.0817	0.104

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H07RN-F FLEXIBLE MAINS AND CONTROL CABLE BS EN 50525-2-21



APPLICATION

Flexible EPR cable with high resistance to mechanical stress. Able to withstand water and weather. For use on Work sites, mobile power supplies, ports and harbors, water treatment plants, sewage and drains, hot and cold areas and harsh industrial environments. For use in portable power supplies, site equipment, industrial machinery, and audio visual equipment. Can be cut to size for patch leads with a choice of fittings.

CONSTRUCTION

Conductor: Class 5 flexible stranded copper conductor to BS EN 60228

Insulation: EPR (Ethylene Propylene Rubber) to BS 50363

Sheath: PCP (Polychloroprene) To BS EN 50363

CABLE STANDARDS

BS EN 50525-2-21

BS EN 60811-2-1

BS EN/IEC 60332-1-2

CHARACTERISTICS

Voltage Rating: 450/750 Volts

Temperature Limits: Fixed: -25°C to +60°C, Can be supplied up to 90°C

Minimum Bending Radius: As per manufacturer datasheet

CORE IDENTIFICATION

2 Core: Brown Blue

3 Core: Brown Blue G/Y

4 Core: Brown Blue Grey G/Y

5 Core: Brown Black Grey Blue G/Y

Cable with 6 core and above

Black with White Numbers plus G/Y

Should not be installed below 0°C

H07RN-F FLEXIBLE MAINS AND CONTROL CABLE - DIMENSIONS

CCC CODE	CONDUCTOR SIZE (MM ²)	STRANDING (MM)	NO OF CORES	WEIGHT (KG/KM)	OVERALL MEAN DIAMETER (MM)	
					LOWER LIMIT	UPPER LIMIT
3182P	1	32/0.20	2	95	6.1	8
3183P1	1	32/0.20	3	115	6.5	8.5
3184P1	1	32/0.20	4	140	7.1	9.3
3182P1/5	1.5	30/0.25	2	132	7.6	9.8
3183P1/5	1.5	30/0.25	3	165	8	10.4
3184P1/5	1.5	30/0.25	4	200	9	11.6
3185P1/5	1.5	30/0.25	5	240	11.2	14.4
3187P1/5	1.5	30/0.25	7	385	14.6	18.2
3180/12P1/5	1.5	30/0.25	12	520	17.6	22.4
3180/19P1/5	1.5	30/0.25	19	700	21	26
3180/27P1/5	1.5	30/0.25	27	920	25.3	30
3180/37P1/5	1.5	30/0.25	37	1260	29	34.2
3182P2/5	2.5	50/0.25	2	193	9	11.6
3183P2/5	2.5	50/0.25	3	235	9.6	12.4
3184P2/5	2.5	50/0.25	4	290	10.7	13.8
3185P2/5	2.5	50/0.25	5	345	13.3	17
3187P2/5	2.5	50/0.25	7	520	17.2	21
3180/12P2/5	2.5	50/0.25	12	810	20.6	26.2
3181P4	4	50/0.25	1	94	7.2	9
3182P4	4	56/0.30	2	275	11.8	15.1
3183P4	4	56/0.30	3	320	12.7	16.2
3184P4	4	56/0.30	4	395	14	17.9
3185P4	4	56/0.30	5	485	15.6	19.9
3187P4	4	56/0.30	7	773	19.8	24.4
6381P6	6	84/0.30	1	130	7.9	9.8
6382P6	6	84/0.30	2	350	13.1	16.8
6383P6	6	84/0.30	3	495	14.1	18
6384P6	6	84/0.30	4	610	15.7	20
6385P6	6	84/0.30	5	760	17.5	22.9
6387P6	6	84/0.30	7	904	21.6	26.9
6381P10	10	80/0.40	1	230	17.7	22.6
6383P10	10	80/0.40	3	880	19.1	24.2
6384P10	10	80/0.40	4	1060	20.9	26.5
6385P10	10	80/0.40	5	1300	22.9	29.1
6381P16	16	126/0.40	1	320	10.8	13.4
6382P16	16	126/0.40	2	850	20.2	25.7
6383P16	16	126/0.40	3	1090	21.8	27.6
6384P1	16	126/0.40	4	1345	23.8	30.1
6385P16	16	126/0.40	5	1680	26.4	33.3

H07RN-F FLEXIBLE MAINS AND CONTROL CABLE - DIMENSIONS

CCC CODE	CONDUCTOR SIZE (MM ²)	STRANDING (MM)	NO OF CORES	WEIGHT (KG/KM)	OVERALL MEAN DIAMETER (MM)	
					LOWER LIMIT	UPPER LIMIT
6381P25	25	196/0.40	1	450	12.7	15.8
6382P25	25	196/0.40	2	1210	24.3	30.7
6383P25	25	196/0.40	3	1394	26.1	33
6384P22	5	196/0.40	4	1995	28.9	36.6
6385P25	25	196/0.40	5	2470	32	40.4
6381P35	35	276/0.4	1	605	14.3	17.9
6383P35	35	276/0.40	3	1850	29.3	37.1
6384P35	35	276/0.40	4	2645	32.5	41.1
6385P35	35	276/0.40	5	2930	34	43
6381P50	50	396/0.40	1	825	16.5	20.6
6383P50	50	396/0.40	3	2890	34.1	42.9
6384P50	50	396/0.40	4	3635	37.7	47.5
6385P50	50	396/0.40	5	4450	39.03	49.18
6381P70	70	360/0.50	1	1090	18.6	23.3
6383P70	70	360/0.50	3	3850	38.4	48.3
6384P70	70	360/0.50	4	4830	42.7	54
6385P70	70	360/0.50	5	5938	48.5	55
6381P95	95	475/0.50	1	1405	20.8	26
6383P95	95	475/0.50	3	4185	43.3	50
6384P95	95	475/0.50	4	6320	48.5	61
6385P95	95	475/0.50	5	6695	54	64.5
6381P120	120	608/0.50	1	1745	22.8	28.6
6383P120	120	608/0.50	3	5080	47.4	60
6384P120	120	608/0.50	4	6500	53	66
6385P120	120	608/0.50	5	7542	57.9	68.5
6381P150	150	756/0.50	1	1824	25.2	31.4
6383P150	150	756/0.50	3	6267	52	66
6384P150	150	756/0.50	4	8031	58	73
6381P185	185	925/0.50	1	2202	27.6	34.4
6383P185	185	925/0.50	3	7661	57	72
6384P185	185	925/0.50	4	9830	64	80
6381P240	240	1221/0.50	1	2847	30.6	38.3
6383P240	240	1221/0.50	3	9692	65	82
6384P240	240	1221/0.50	4	12444	72	91
6381P300	300	1525/0.50	1	3495	33.5	41.9
6381P400	400	2257/0.50	1	4880	45.5	56.5
6381P500	500	1769/0.60	1	5301	41.3	52
6381P630	630	2257/0.60	1	7460	45.5	56.5

H07RN-F CURRENT – CARRYING CAPACITY (AMPERES)

CONDUCTOR CROSS – SECTIONAL AREA MM ²	60°C CONDUCTOR OPERATING TEMPERATURE (60°C STANDARD STOCK CABLE)			85°C CONDUCTOR OPERATING TEMPERATURE (90°C CABLE - SPECIAL ORDER)		
	SINGLE-PHASE AC OR DC *1MM – 2.5MM AC ONLY		THREE-PHASE AC	SINGLE-PHASE AC OR DC		THREE-PHASE AC
	2 CORE CABLE WITH OR WITHOUT PROTECTIVE CONDUCTOR	2 SINGLE CORE CABLES	3, 4 OR 5 CORE CABLE	2 CORE CABLE WITH OR WITHOUT PROTECTIVE CONDUCTOR	2 SINGLE CORE CABLES TOUCHING	3, 4 OR 5 CORE CABLE
1	2	3	4	5	6	7
(MM ²)	(A)	(A)	(A)	(A)	(A)	(A)
1*	10	-	10	-	-	-
1.5*	16	-	16	-	-	-
2.5*	25	-	20	-	-	-
4	30	-	26	41	-	36
6	39	-	34	53	-	47
10	51	-	47	73	-	64
16	73	-	63	99	-	86
25	97	-	83	131	-	114
35	-	140	102	-	192	140
50	-	175	124	-	240	170
70	-	216	158	-	297	216
95	-	258	192	-	354	262
120	-	302	222	-	414	303
150	-	347	255	-	476	348
185	-	394	291	-	540	397
240	-	471	343	-	645	467
300	-	541	394	-	741	537
400	-	644	-	-	885	-
500	-	738	-	-	1017	-
630	-	861	-	-	1190	-

THE ABOVE IS IN ACCORDANCE WITH 18TH EDITION OF IET WIRING REGULATIONS

H07RN-F - VOLTAGE DROP

NOMINAL CROSS SECTIONAL AREA MM²	2 CORE CABLE DC mV/A/m	TWO CORE CABLE SINGLE-PHASE AC mV/A/m			1 X THREE CORE, FOUR CORE OR FIVE CORE CABLE, THREE PHASE AC			2 X SINGLE CORE CABLES TOUCHING			
								DC mV/A/m	SINGLE PHASE AC * mV/A/m		
1	46	46			40			-	-		
1.5	32	32			27			-	-		
2.5	19	19			16			-	-		
4	12	12			10			-	-		
6	7.8	7.8			6.7			-	-		
10	4.6	4.6			4			-	-		
16	2.9	2.9			2.5			-	-		
		R	X	Z	R	X	Z		R	X	Z
25	1.8	1.8	0.175	1.85	1.55	0.15	1.55	-	-	-	-
35	-	-	-	-	1.10	0.15	1.15	1.31	1.31	0.21	1.32
50	-	-	-	-	0.83	0.145	0.84	0.91	0.91	0.21	0.93
70	-	-	-	-	0.57	0.14	0.58	0.64	0.64	0.2	0.67
95	-	-	-	-	0.42	0.135	0.44	0.49	0.49	0.195	0.53
120	-	-	-	-	0.33	0.135	0.36	0.38	0.38	0.19	0.43
150	-	-	-	-	0.27	0.13	0.3	0.31	0.31	0.19	0.36
185	-	-	-	-	0.22	0.13	0.26	0.25	0.25	0.19	0.32
240	-	-	-	-	0.17	0.13	0.21	0.19	0.195	0.185	0.27
300	-	-	-	-	0.135	0.125	0.185	0.15	0.155	0.18	0.24
400	-	-	-	-	-	-	-	0.115	0.12	0.175	0.21
500	-	-	-	-	-	-	-	0.09	0.099	0.17	0.2
630	-	-	-	-	-	-	-	0.068	0.079	0.17	0.185

THE ABOVE IS IN ACCORDANCE WITH 18TH EDITION OF IET WIRING REGULATIONS

CONDUCTOR OPERATING TEMPERATURE: 90°C

R = RESISTIVE COMPONENT

X = REACTIVE COMPONENT

Z = IMPEDANCE VALUE

* A LARGER VOLTAGE DROP WILL RESULT IF THE CABLES ARE SPACED APART

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