ATLANTIC GROUP
Mechanical & Electrical Contractors

Technical/Product Data Submission Sheet

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Title: PV System	**No of pages inc. cover:** 44
Confirmation Required By: 25/08/26	

X	Specified/Approved		Equal/Approved
	VE/Derogated		Other

Contents List:

- Technical Submittal from specialist subcontractor Greenbridge Renewables



GreenBridge

TECHNICAL SUBMITTAL

GREY MARE LANE

PREPARED FOR

ATLANTIC

DATE & VERSION

10 August 2026 | V1.1

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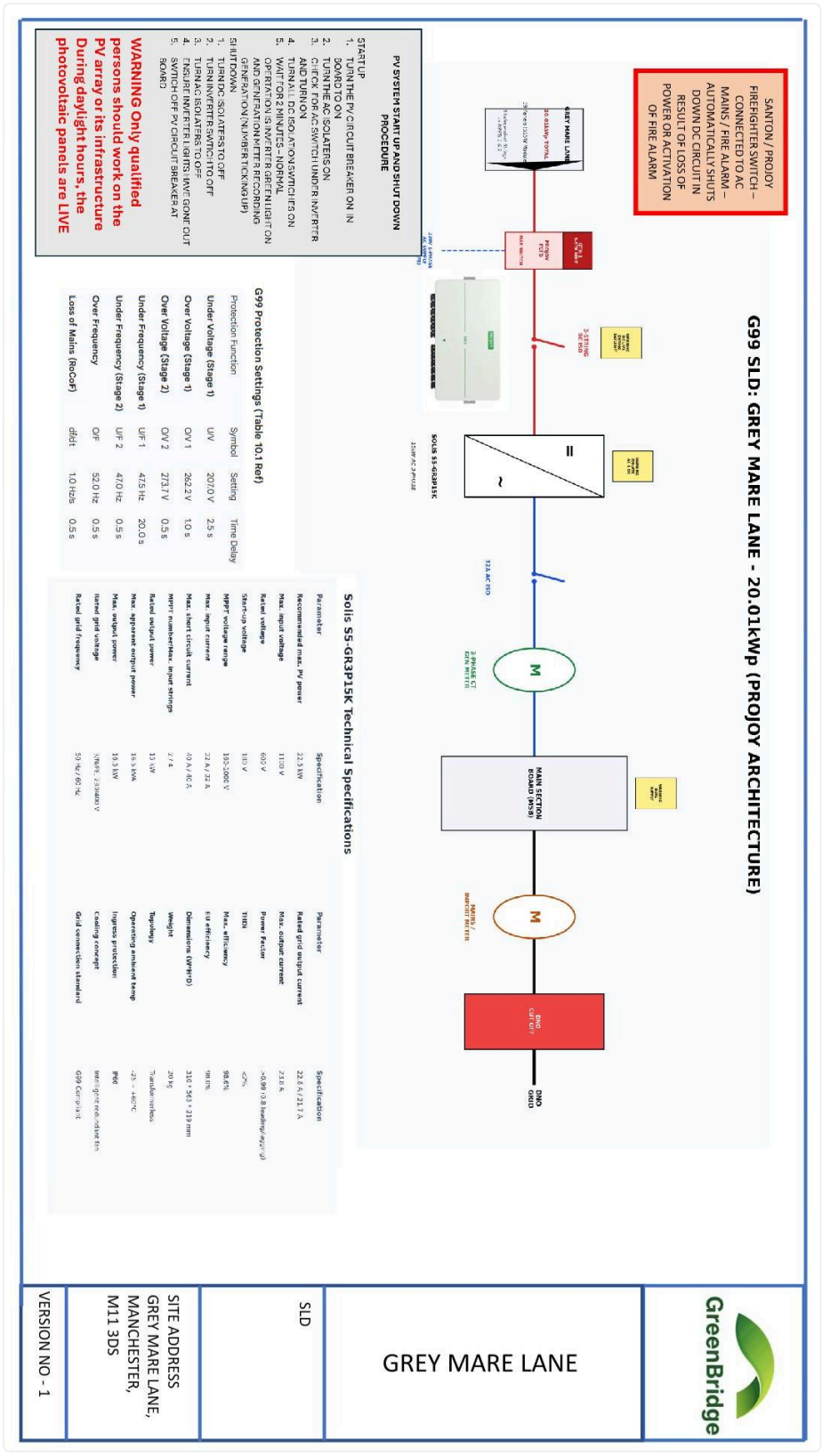
Section 01

PV ARRAY LAYOUT



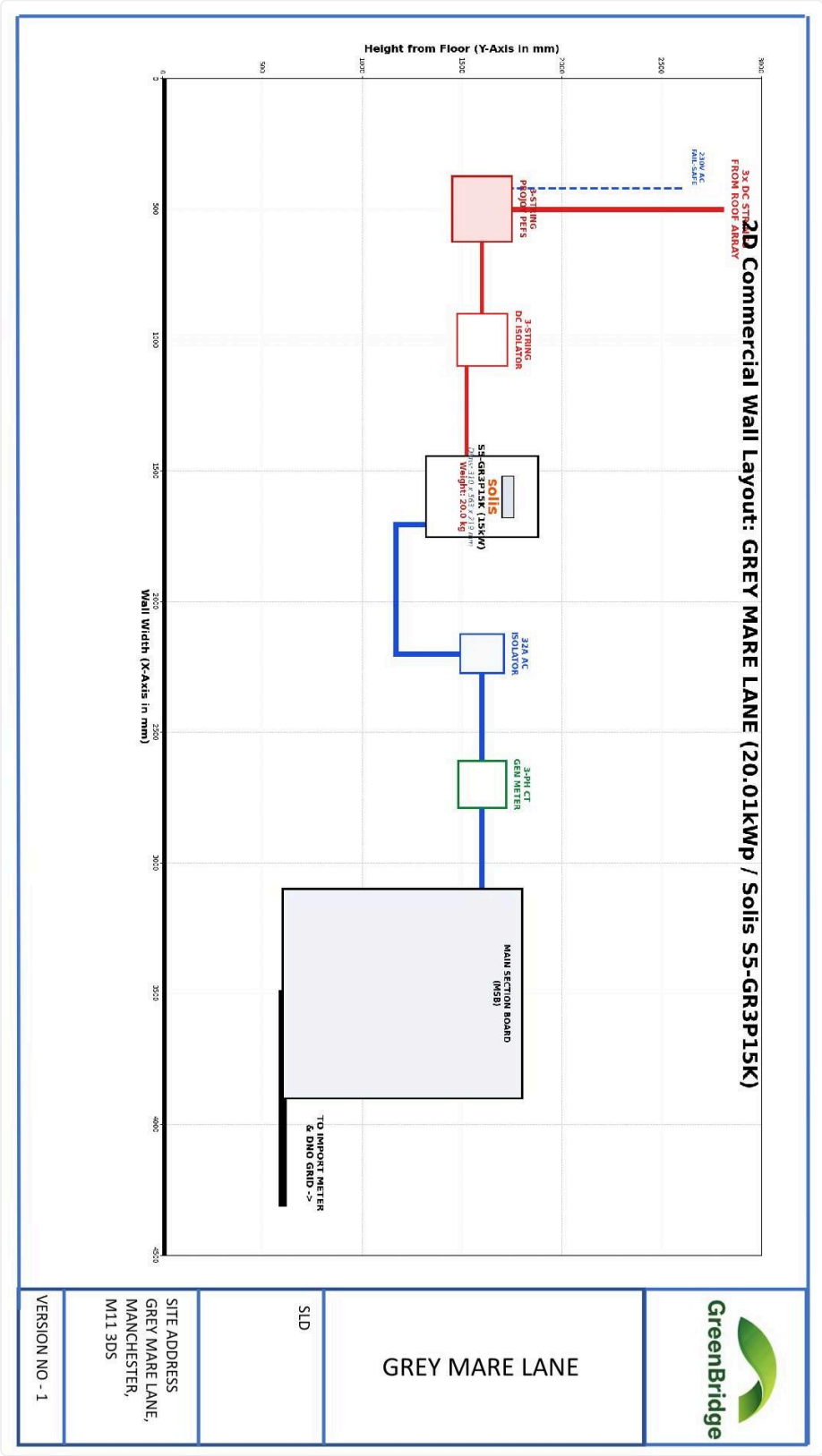
Section 02

SINGLE LINE DIAGRAM (SLD)



Section 03

INVERTER WALL LAYOUT



Section 04

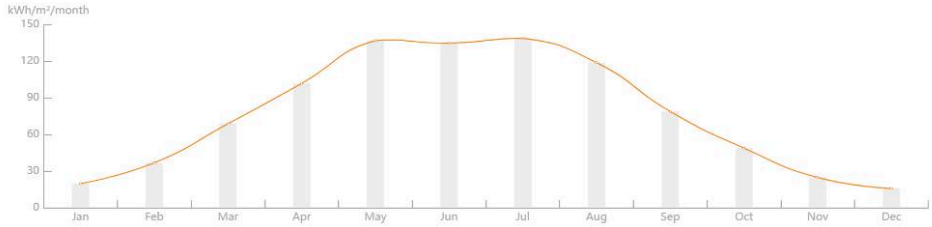
INVERTER YIELD REPORT (PG 1)

Project Information

Name:	GREY MARE LANE
Address:	Manchester M11 3DS, UK
Latitude:	N 53.4779516
Longitude:	W -2.1966048
Installation Capacity(kW):	20.01
Maximum Atmospheric Temperature:	21.13℃
Lowest Atmospheric Temperature:	1.43℃



Horizontal Solar Radiation



PV Array

PV Array Name	Panel Count	Model Name	Peak Power(kW)	Azimuth	Inclination
ARRAY	39	DM515G12RT-B54H BT	20.01	180	10

Inverter

Model	Inverter Count	Panel Access Quantity	Panel Access Area(m²)
S5-GR3P15K	1	39	87.43
Sum	1	39	87.43

PV project parameters

Total number of PV modules	39	Total number of inverters	1	Peak power	20.01 kW
DC/AC Ratio	133.4%	AC active power	15 kW	Annual energy production	15750.82 kWh
PR	85%	specific energy production	787.15 kWh/kWp	Line Loss	0%

Energy Conservation

Reduced Emissions(CO_2)	Reduced Emissions(CH_4)	Reduced Emissions(NOx)	Equivalent Trees Planted
48.35 t	123.95 kg	261.24 kg	241.26 ha

Section 04

INVERTER YIELD REPORT (PG 2)



Section 05

VDV BALLAST REPORT (PG 1)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Project information

GreenBridge

Project name
GREY MARE LANE

Company
ATLANTIC

Project location
Manchester M11 3DS, UK

Project reference
GBR4278

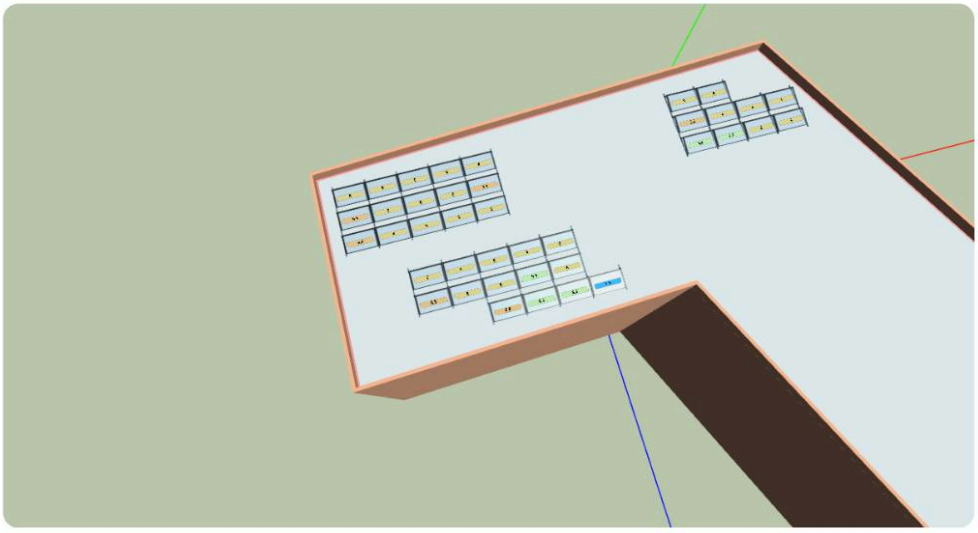
DC Power
20,085 kWp

Module quantity
39 pcs

Brand/type of solar panel
DMEGC 515Wp

Dimensions/weight solar panel
1.977 x 1.134 x 30 mm / 27,1 kg

Creation date
6 August 2026 at 12:50



Section 05

VDV BALLAST REPORT (PG 2)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

System specification

ValkPro+ L10 South

System type	ValkPro+	Fixation	Ballast
Orientation	Landscape	Foot type	Tile carrier
Module tilt	10°	Colour	Grey
Row pitch	1.500 mm	Side plates	Yes
		Friction coefficient	0,545



Section 05

VDV BALLAST REPORT (PG 3)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Wind and snow load

Country
United Kingdom

Standard - Wind actions
BS EN 1991-1-4/NA:2008

Basic Wind Speed Vb,0
22,5 m/s

Standard - Snow loads
BS EN 1991-1-3/NA:2018

Snow load zone
Zone 3

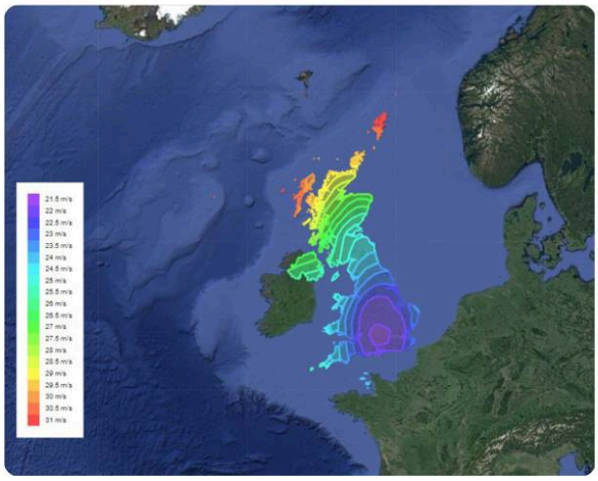
Height above sea level
58,91 m

Design lifetime
25 years

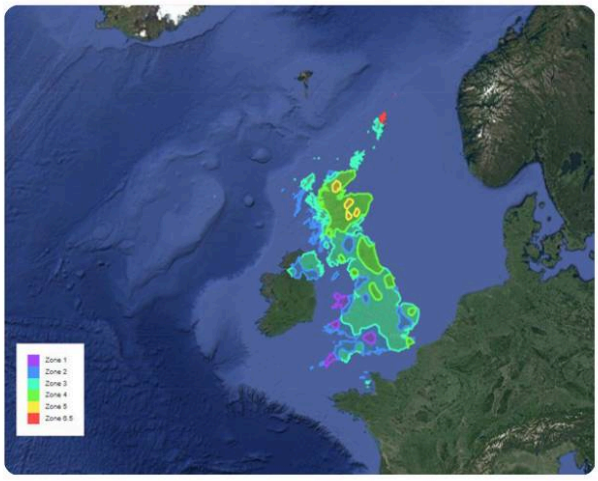
Consequence Class
CC1 (EN 1990)

Orography factor
Co = 1,000

Wind speed map



Snow load map



Section 05

VDV BALLAST REPORT (PG 4)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Terrain category



Terrain category Town

Urban area covered with buildings, hedges, vineyards, grove



Highest building (m)

18,50 m

Perimeter radius (m)

500 m

Section 05

VDV BALLAST REPORT (PG 5)

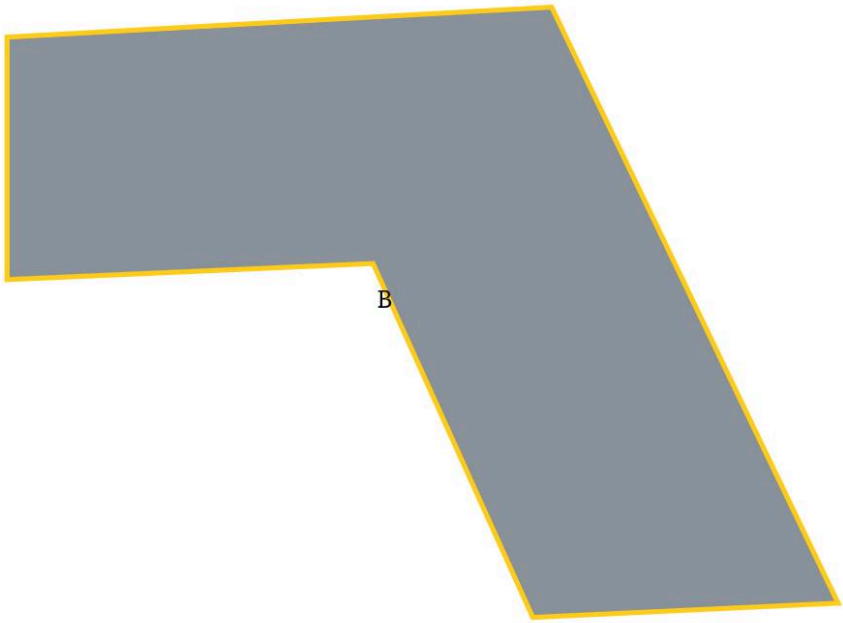
VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Project overview





Section 05

VDV BALLAST REPORT (PG 6)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Summary

Roof properties

Height	18,5 m	Roof area	765,79 m²
Slope	0°	PV-system area	116,24 m²
Roof type	Flat	Cladding	Membrane roof
Parapet height	0,75 m	Roof membrane type	PVC
Parapet width	0,2 m	Number of panels	39 pcs
		Power	20,09 kWp

Eurocode calculations

Peak wind velocity pressure	0,79 kPa	Combination factor for wind load	0,5
Characteristic snow load	0,47 kPa	Combination factor for snow load	0,5
Min. point load on roof	10 kPa		
Max. point load on roof	32 kPa		
Load case	Dead weight (system + ballast)		

Weight calculations

Weight of solar panels	1.056,9 kg	Average weight on roof area	4,7 kg/m²
Weight of mounting system	436,78 kg	Average weight on PV-system area	31,1 kg/m²
Ballast weight	2.116 kg		
Total weight	3.609,68 kg		

Pressure per panel

Area per panel	2,24 m²
Max upward pressure	583 Pa
Max downward pressure	825 Pa

Section 05

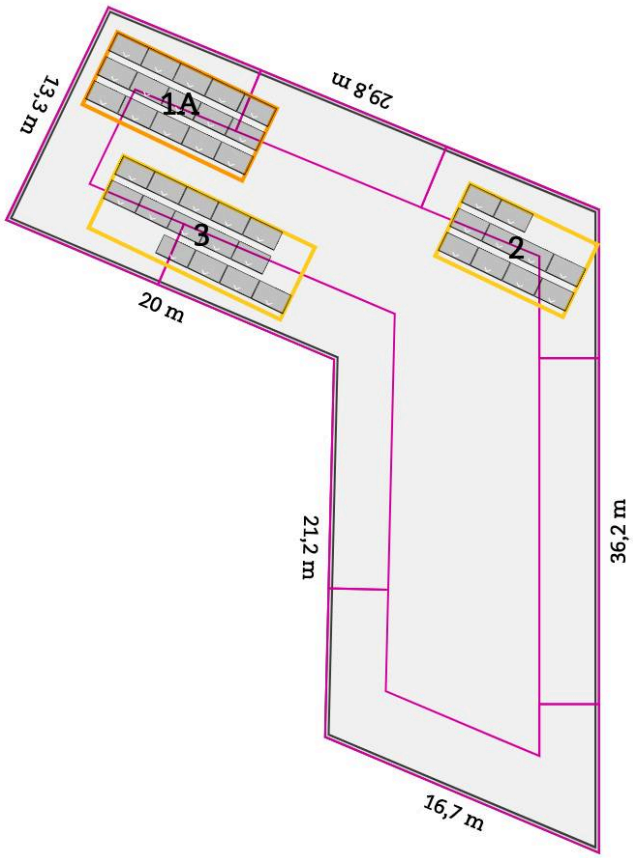
VDV BALLAST REPORT (PG 7)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 1 | Solar panels



Corner/edge zone

Components

Module	15 Pcs	Galv roof carrier L=1500x1,5mm	18 Pcs
Alu rear foot ValkPro+ L10° middle	12 Pcs	Galv side plate ValkPro+ L10° universal	6 Pcs
Alu rear foot ValkPro+ L10° side	6 Pcs	SS thread-forming bolt M6x20mm - T30	36 Pcs
Alu front foot ValkPro+ P/L10° middle	12 Pcs	ValkPro+ Tile carrier	30 Pcs
Alu front foot ValkPro+ P/L10° side	6 Pcs	Galv. ballast carrier ValkPro+ L=2179mm	30 Pcs
SS hammerhead bolt M8x20mm + lock nut	12 Pcs	Ballast full tiles	87 Pcs
Galv back plate ValkPro+ L10° L=2180mm	15 Pcs	Ballast half tiles	3 Pcs

VAN DER VALK SOLAR SYSTEMS

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Section 05

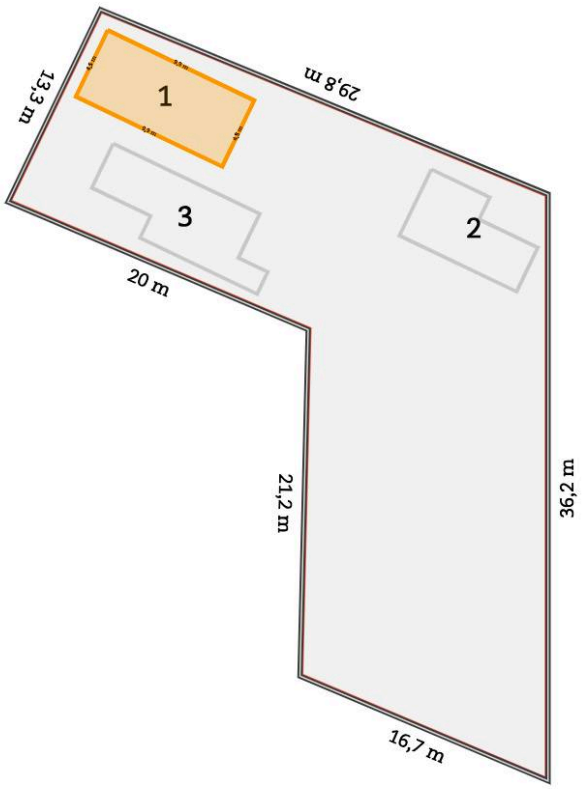
VDV BALLAST REPORT (PG 8)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 1 | Field dimensions



Legend

Average roof load	30,8 kg/m²
Maximum point load	31 kPa
Field area	44,7 m²

Section 05

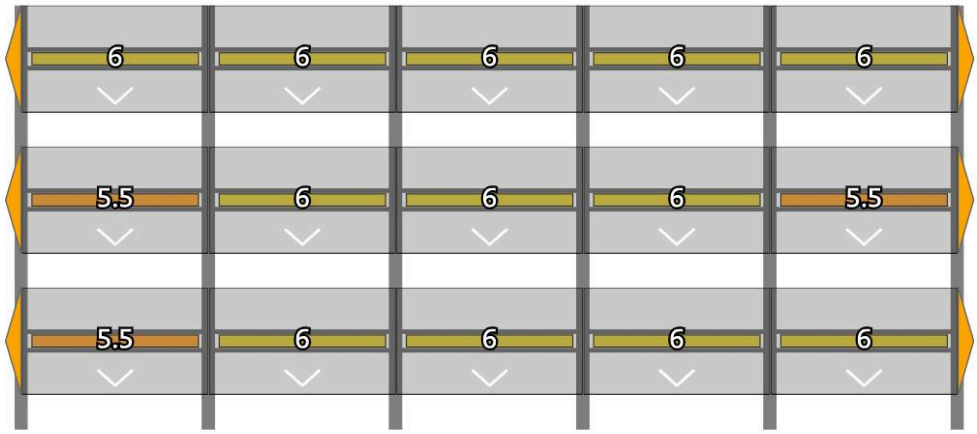
VDV BALLAST REPORT (PG 9)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 1 - part 1A | Solar panels



Section 05

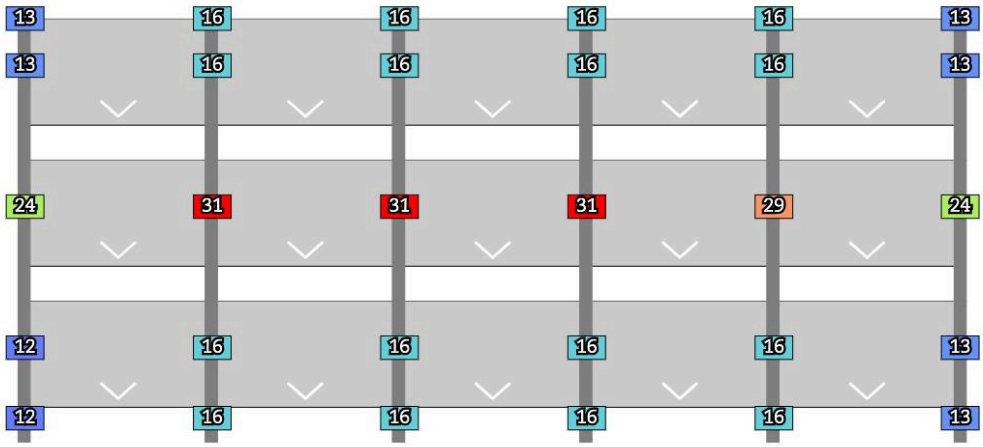
VDV BALLAST REPORT (PG 10)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 1 - part 1A | Point load



Legend	Point load of individual feet (system-weight)	Load case selected:
QTY Standard feet (kPa)	12 31	Dead weight (system + ballast) 1A
QTY Load distributor (kPa)		

Section 05

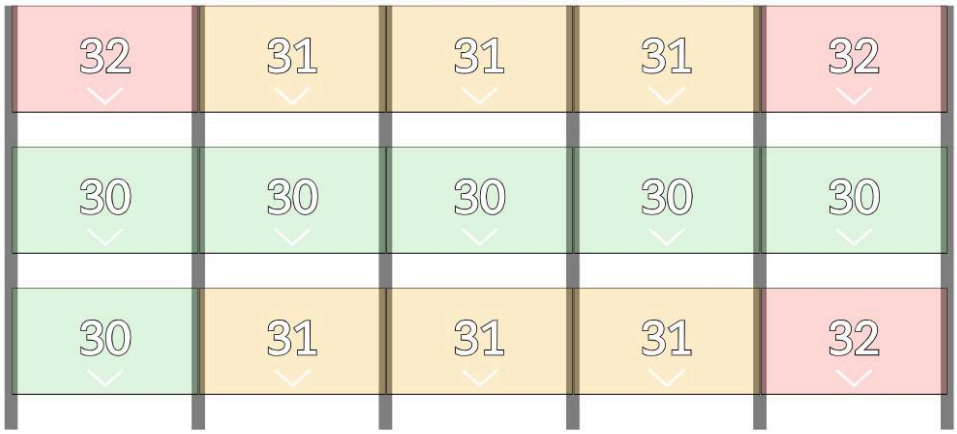
VDV BALLAST REPORT (PG 11)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 1 - part 1A | Load



Roof load shows only dead load (system + ballast); wind and snow are not included.

Legend

QTY = quantity of kg/m²

Max. Pressure	32 kg/m²
Avg. Pressure	30,8 kg/m²

Section 05

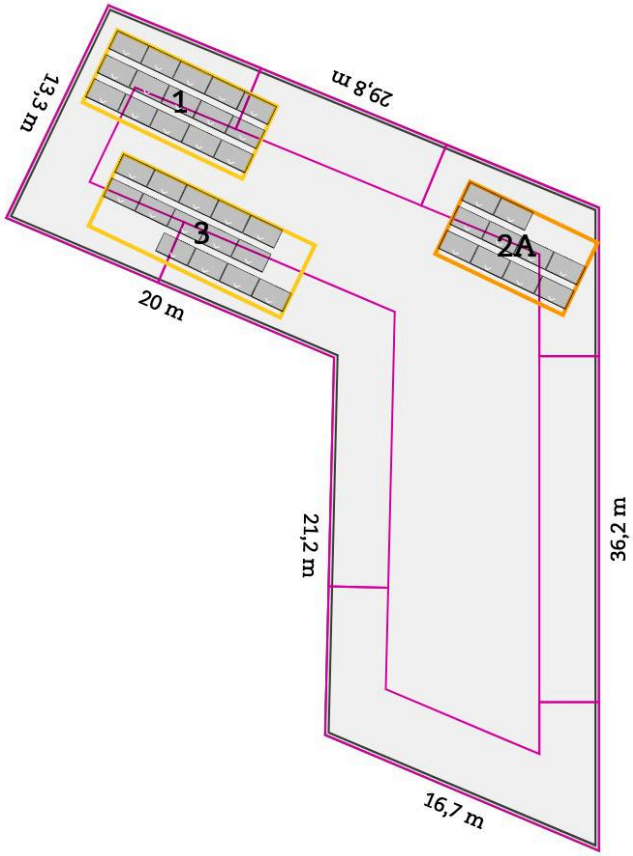
VDV BALLAST REPORT (PG 12)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 2 | Solar panels



Corner/edge zone

Components

Module	10 Pcs	Galv roof carrier L=1500x1,5mm	13 Pcs
Alu rear foot ValkPro+ L10° middle	7 Pcs	Galv side plate ValkPro+ L10° universal	6 Pcs
Alu rear foot ValkPro+ L10° side	6 Pcs	SS thread-forming bolt M6x20mm - T30	31 Pcs
Alu front foot ValkPro+ P/L10° middle	7 Pcs	ValkPro+ Tile carrier	23 Pcs
Alu front foot ValkPro+ P/L10° side	6 Pcs	Galv. ballast carrier ValkPro+ L=2179mm	20 Pcs
SS hammerhead bolt M8x20mm + lock nut	8 Pcs	Ballast full tiles	59 Pcs
Galv back plate ValkPro+ L10° L=2180mm	10 Pcs	Ballast half tiles	3 Pcs

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Section 05

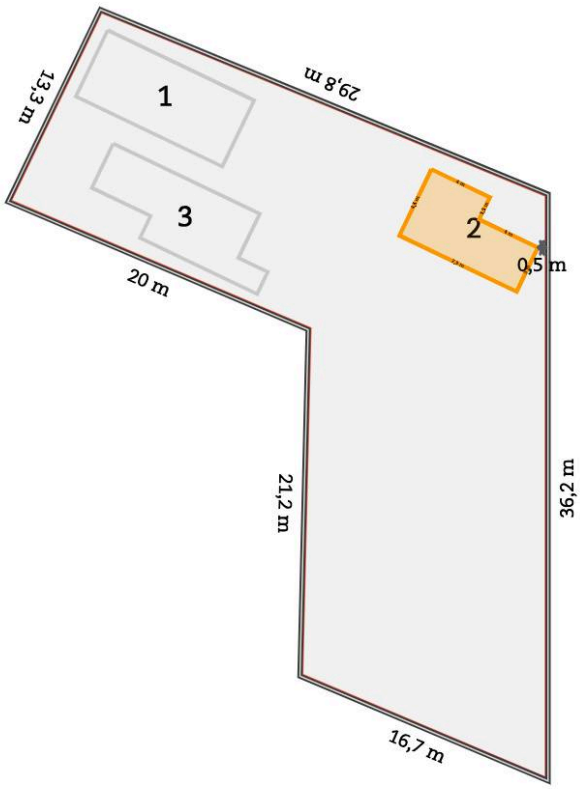
VDV BALLAST REPORT (PG 13)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 2 | Field dimensions



Legend

Average roof load	31,5 kg/m²
Maximum point load	31 kPa
Field area	29,8 m²

Section 05

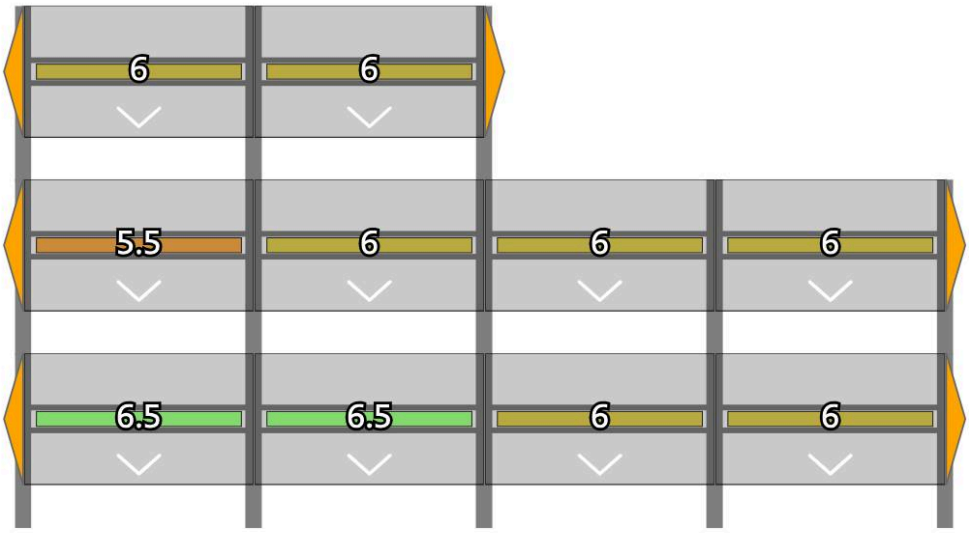
VDV BALLAST REPORT (PG 14)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 2 - part 2A | Solar panels



Section 05

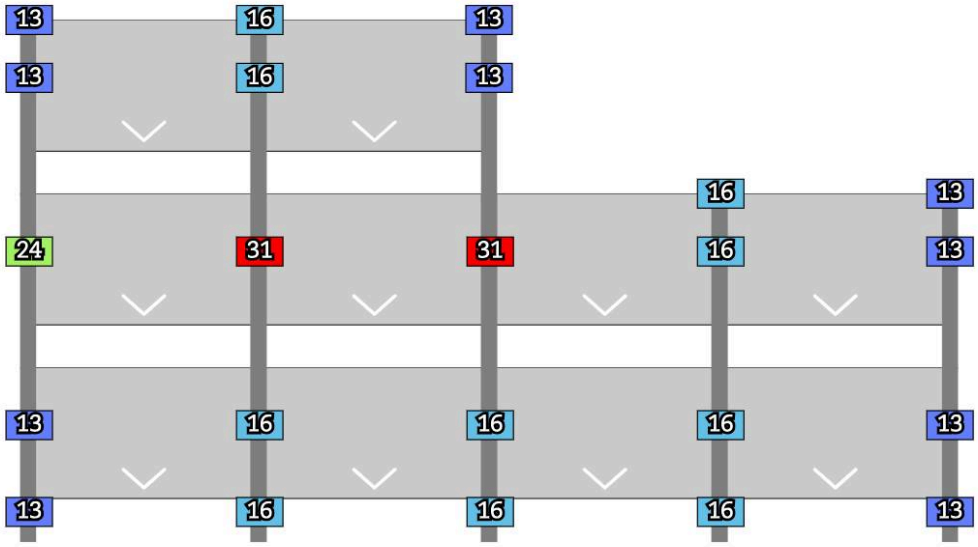
VDV BALLAST REPORT (PG 15)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 2 - part 2A | Point load



Legend	Point load of individual feet (system-weight)	Load case selected:
QTY Standard feet (kPa)	13 31	Dead weight (system + ballast) 2A
QTY Load distributor (kPa)		

Section 05

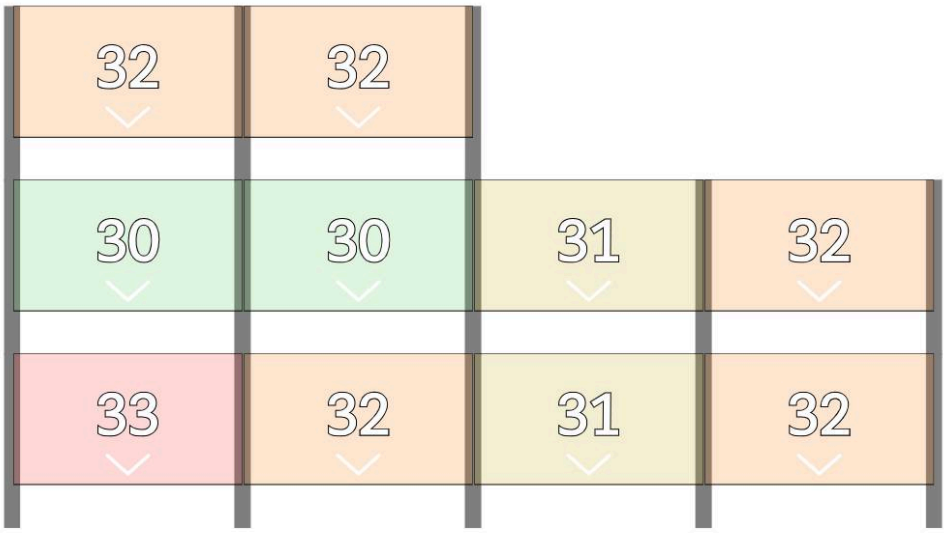
VDV BALLAST REPORT (PG 16)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 2 - part 2A | Load



Roof load shows only dead load (system + ballast); wind and snow are not included.

Legend

QTY = quantity of kg/m²

Max. Pressure	33 kg/m²
Avg. Pressure	31,5 kg/m²

Section 05

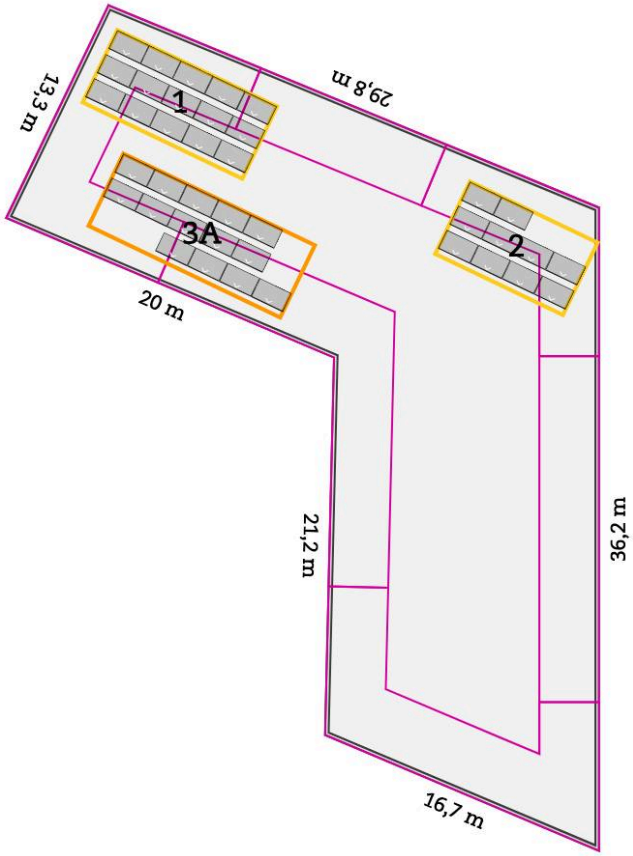
VDV BALLAST REPORT (PG 17)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 3 | Solar panels



Corner/edge zone

Components

Module	14 Pcs	Galv roof carrier L=1500x1,5mm	17 Pcs
Alu rear foot ValkPro+ L10° middle	11 Pcs	Galv side plate ValkPro+ L10° universal	6 Pcs
Alu rear foot ValkPro+ L10° side	6 Pcs	SS thread-forming bolt M6x20mm - T30	35 Pcs
Alu front foot ValkPro+ P/L10° middle	11 Pcs	ValkPro+ Tile carrier	31 Pcs
Alu front foot ValkPro+ P/L10° side	6 Pcs	Galv. ballast carrier ValkPro+ L=2179mm	28 Pcs
SS hammerhead bolt M8x20mm + lock nut	10 Pcs	Ballast full tiles	83 Pcs
Galv back plate ValkPro+ L10° L=2180mm	14 Pcs	Ballast half tiles	6 Pcs

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Section 05

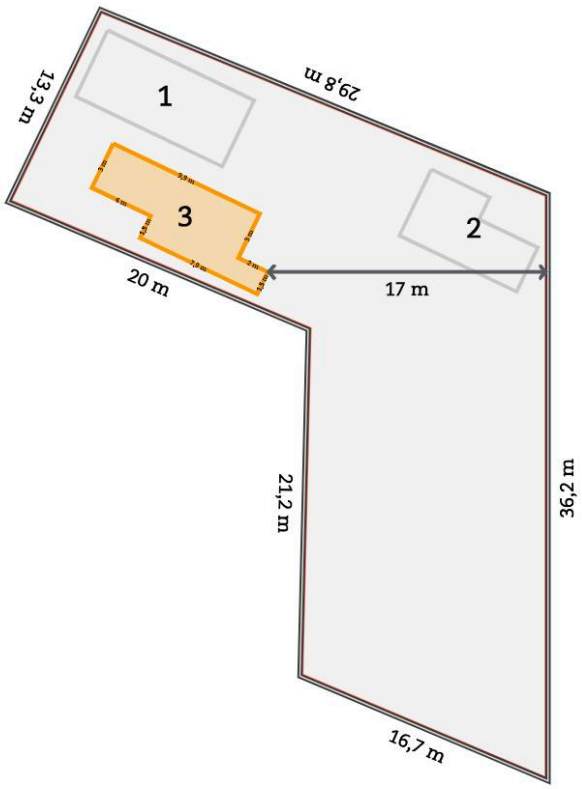
VDV BALLAST REPORT (PG 18)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 3 | Field dimensions



Legend

Average roof load	31,5 kg/m²
Maximum point load	32 kPa
Field area	41,7 m²

Section 05

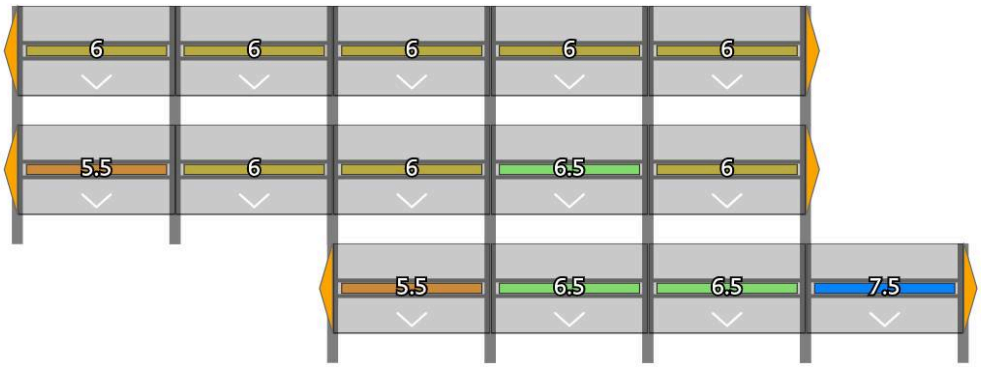
VDV BALLAST REPORT (PG 19)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 3 - part 3A | Solar panels



Section 05

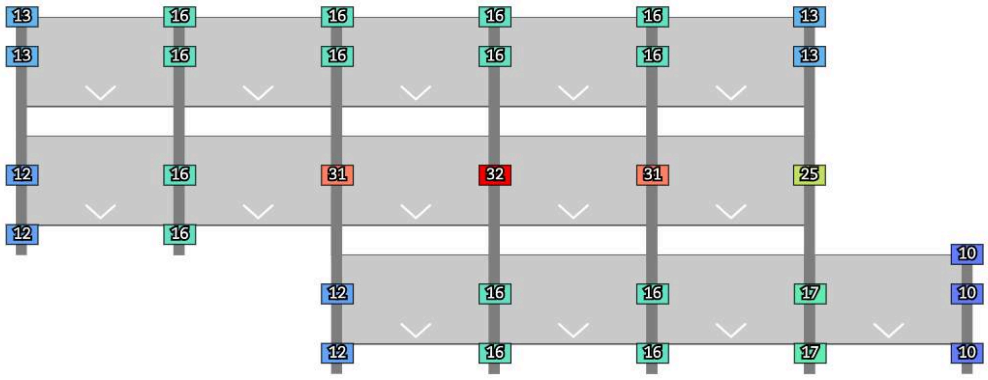
VDV BALLAST REPORT (PG 20)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 3 - part 3A | Point load



Legend	Point load of individual feet (system-weight)	Load case selected:
QTY Standard feet (kPa)	10 32	Dead weight (system + ballast)
QTY Load distributor (kPa)		3A

Section 05

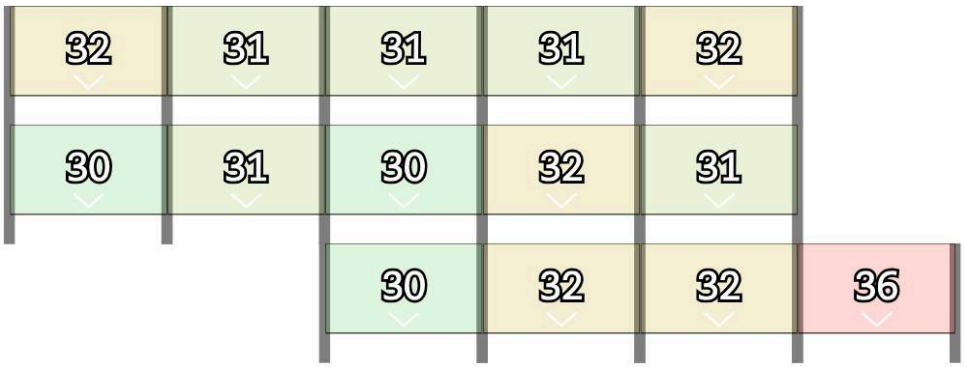
VDV BALLAST REPORT (PG 21)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Field 3 - part 3A | Load



Roof load shows only dead load (system + ballast); wind and snow are not included.

Legend

QTY = quantity of kg/m²

Max. Pressure	36 kg/m²
Avg. Pressure	31,5 kg/m²

Section 05

VDV BALLAST REPORT (PG 22)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Bill of materials

Item no.	Panel type	Qty
DM515G12RT-B54HBT	DMEGC	39 pcs

Item no.	Mounting system	Calc. Qty	Extra Qty	Total Qty
724650	Alu rear foot ValkPro+ L10° middle	30	0	30 Pcs
724651	Alu rear foot ValkPro+ L10° side	18	0	18 Pcs
724660	Alu front foot ValkPro+ P/L10° middle	30	0	30 Pcs
724661	Alu front foot ValkPro+ P/L10° side	18	0	18 Pcs
774221	SS hammerhead bolt M8x20mm + lock nut	30	0	30 Pcs
742515	Galv back plate ValkPro+ L10° L=2180mm	39	0	39 Pcs
741801500	Galv roof carrier L=1500x1,5mm	48	0	48 Pcs
742540	Galv side plate ValkPro+ L10° universal	18	0	18 Pcs
773320	SS thread-forming bolt M6x20mm - T30	102	0	102 Pcs
729636	ValkPro+ Tile carrier	84	0	84 Pcs
742565	Galv. ballast carrier ValkPro+ L=2179mm	78	0	78 Pcs

Item no.	Additional items	Calc. Qty	Extra Qty	Total Qty
7506301545	Tile 30 x 15 x 4,5cm - 4,5kg - NL	12	0	12 pcs

Section 05

VDV BALLAST REPORT (PG 23)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Roof plane B | Bill of materials

Item no.	Additional items	Calc. Qty	Extra Qty	Total Qty
7506303045	Tile 30 x 30 x 4,5cm - 9kg - NL	229	0	229 pcs

Section 05

VDV BALLAST REPORT (PG 24)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Project total | Project summary

Field number	Panel Quantity (pcs)	DC power (kWp)	System Weight (kg/m²)	Max. pressure/support (kPa)
1	15	7.725	30,6	31
2	10	5.150	31,3	31
3	14	7.210	31,4	32

Section 05

VDV BALLAST REPORT (PG 25)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Project total | Bill of materials

Item no.	Panel type			Qty
DM515G12RT-B54HBT	DMEGC			39 pcs
Item no.	**Mounting system**	**Calc. Qty**	**Extra Qty**	**Total Qty**
724650	Alu rear foot ValkPro+ L10° middle	30	0	30 Pcs
724651	Alu rear foot ValkPro+ L10° side	18	0	18 Pcs
724660	Alu front foot ValkPro+ P/L10° middle	30	0	30 Pcs
724661	Alu front foot ValkPro+ P/L10° side	18	0	18 Pcs
774221	SS hammerhead bolt M8x20mm + lock nut	30	0	30 Pcs
742515	Galv back plate ValkPro+ L10° L=2180mm	39	0	39 Pcs
741801500	Galv roof carrier L=1500x1,5mm	48	0	48 Pcs
742540	Galv side plate ValkPro+ L10° universal	18	0	18 Pcs
773320	SS thread-forming bolt M6x20mm - T30	102	0	102 Pcs
729636	ValkPro+ Tile carrier	84	0	84 Pcs
742565	Galv. ballast carrier ValkPro+ L=2179mm	78	0	78 Pcs
Item no.	**Additional items**	**Calc. Qty**	**Extra Qty**	**Total Qty**
7506301545	Tile 30 x 15 x 4,5cm - 4,5kg - NL	12	0	12 pcs

VAN DER VALK SOLAR SYSTEMS

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Section 05

VDV BALLAST REPORT (PG 26)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

Project total | Bill of materials

Item no.	Additional items	Calc. Qty	Extra Qty	Total Qty
7506303045	Tile 30 x 30 x 4,5cm - 9kg - NL	229	0	229 pcs
732001	SS cable clamp small	78	0	78 pcs
732011	Plastic cable clamp for back foot ValkPro+	48	0	48 pcs
732012	Plastic multi-cable clip for roof carrier	39	0	39 pcs
738201	Ss. Connector clamp	39	0	39 pcs

Section 05

VDV BALLAST REPORT (PG 27)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

General Installation Guidelines

General

- This project report is based on the entered parameters and results of the calculator. The results of the calculations have been calculated with the greatest care. Always check carefully whether all values have been entered and displayed correctly in advance.
- During the installation of the mounting system, the instructions and safety regulations published in this project report and the installation manual of the chosen mounting system must be carefully followed. As shown in the general terms and conditions of sale and delivery of Van der Valk Solar Systems B.V., non-compliance with the regulations stated in this document means that the customer can no longer rely on any guarantees and Van der Valk Solar Systems is no longer liable for any form of damage.

Safety

- The installation of the mounting system must be carried out by qualified technical personnel.
- Omitting parts may negatively affect performance and is therefore not allowed.
- Avoid carrying out installation work during bad weather conditions, especially in case of strong winds and a wet (slippery) roof surface.
- During the planning and execution of the installation, always take into account possible changing weather conditions, in particular strong winds or storms. Take the right measures and make sure that no situation can arise where solar panels have already been placed on the system, but other essential parts (such as ballast tiles, side or back plates) are still missing.
- Always wear appropriate protective clothing and gloves when carrying out the installation work.
- During installation work on the roof, always use fall protection and, if necessary, work with safety nets and roof edge protection.
- Carefully follow the instructions for installation of the mounting system, as shown in the current installation manual and online installation videos.
-

Environmental factors

- High neighbouring buildings or objects, such as windmills, can affect the wind pressure. In these cases, advice should always be obtained from Van der Valk Solar Systems before installation can take place.
- If during the installation it is determined that the project data and/or environmental factors do not fully correspond to the project report, the project must always be re-calculated first.
- In coastal areas, the system should be placed at least 500 meters from open water to prevent accelerated corrosion by the action of salt water. When buildings are present between the open water and the roof, a minimum distance of 250 meters from open water may be maintained.

Section 05

VDV BALLAST REPORT (PG 28)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

General Installation Guidelines

Standards and regulations

- For correct and safe installation and use of the solar mounting system, always observe the applicable standards and regulations:

EN 1990: Basis of structural design
EN 1991-1-3: General actions - snow loads
EN 1991-1-4: General actions - wind loads
IEC 60364: Electrical Installations for Buildings
IEC 62305: Protection against lightnings
EN 50110: Operation of electrical installations
NEN 7250: Solar energy systems - Integration in roofs and facades - Construction aspects

Stability and condition of the roof and roof covering

- Placing a mounting system that uses ballast only, is only allowed in case the roof pitch is less than 5°. In case the roof pitch is 5° or more the mounting system always needs to be fixed mechanically to the roof.
- The condition of the roof must be checked upfront for sufficient strength to bear the weight of the mounting system including PV panels ballast and wind and snow loads. Make sure that the load reserve of the roof is not exceeded anywhere.
- Check the stability of the roof and adjust the roof/construction where necessary.
- Check prior to installation whether the roof covering and/or insulation is suitable for the pressure and thermal expansion of the solar mounting system. The maximum pressure is shown in this project report or can be requested at Van der Valk Solar Systems.
- Bulging of the roof membrane should be prevented. This can lift the solar mounting system and can cause displacement of the mounting system or ballast. It is the installer's responsibility to prevent the roof membrane from bulging.
- Factors such as overhead cranes inside the building, seismic activity and others that affect the stability of the roof and/or building can affect the installed solar mounting system. Van der Valk Solar Systems does not take these factors into account, unless confirmed in writing.
- The roof surface on which the solar mounting system is to be installed must be clean, dry and flat.
- The roof height must always be correspond to the roof height in the project report. For installations on roofs higher than 50 meters, Van der Valk Solar Systems should always be contacted in advance.

Roof zones

- During the installation of the mounting system, always take the applicable roof zones according to EN1991-1-4 into account. Installation in the edge zone of the roof is only possible if this has been explicitly taken into account in the calculation. The edge zone is automatically calculated by the ValkPVplannerPro based on the roof height and building perimeter, according to the applicable standards. It is possible to draw panels in the edge zone of the roof, on the basis of which the required additional ballast, parts or mounting points are automatically calculated.
- In case solar panels on the ValkPro+ system are fully or partially placed in the edge zone of the roof, it is mandatory to use side plates.

Section 05

VDV BALLAST REPORT (PG 29)

VAN DER VALK SOLAR SYSTEMS

GREY MARE LANE

Project report

General Installation Guidelines

Ballast

- After installation of the solar mounting system, it must be carefully checked whether the ballast has been placed in accordance with the ballast drawing. Ballast tiles must be neatly stacked, so that they are sufficiently supported by the tile carriers, mass carriers and/or ballast wings.

Dilatations

- The maximum allowed dimensions of a coupled mounting system is a 30 meters in the aluminium direction and 60 meters in the steel direction. The maximum dimensions are based on the thermal expansion in case of a maximum temperature difference (Delta T) of 70 degrees Celsius. Follow the recommendations in the installation manual for the required gap between the systems.
- The coupled mounting system must not be placed over a gutter or ridge. In the mounting system is place over a gutter or ridge, the system must be split (dilatation), even if the change in roof pitch is minimal.
- When using the extra wide panel support feet for ValkPro+ with ballast, different dilatation rules apply: in such installations the coupled system may be a maximum of 30 meters in the steel/roof carrier direction and 15 meters in the aluminium direction.

Solar panels

- It is the installer's responsibility to determine in advance whether the selected solar panel is compatible with the mounting system, in relation to the dimensions and allowable pressure loads. The calculated pressure loads on the solar panel are shown in this project report.

Cable management

- In order to create a sound and durable electrical connection between the solar panels, it must be ensured that the cables from the junction box have sufficient length and thus do not cause any mechanical stress on the cable glands. Take into account thermal expansion and contraction of cables and the mounting system.
- Cables and connectors must be kept away from sharp and/or abrasive parts and the roof surface by using sufficient and appropriate cable and connector clamps and cable baskets.
- Components of the Van der Valk solar Systems mounting systems can be easily and completely disassembled at the end of their service life and separated for recycling. The systems only have nut-bolt, screw and click connections. No parts are glued or welded. All materials are fully recyclable. Disposal of the components always in accordance with the locally applicable laws and regulations.

MODULE DATASHEET (PG 1)

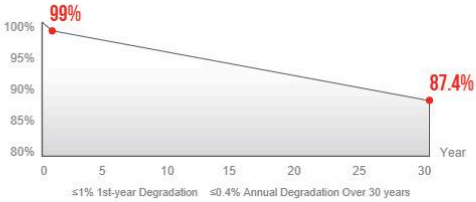


Outstanding Aesthetics
Designed with aesthetics in mind and manufactured using DMEGC Advanced Black Technology.

Extended Stress Tests
Protection against harsh environmental conditions Certified by TÜV Rheinland.

Green Product
Focus on circular economy - low carbon footprint, PFAS-free and recyclable components.

POWER WARRANTY



≤1% 1st-year Degradation ≤0.4% Annual Degradation Over 30 years

COMPANY MANAGEMENT SYSTEM

SA 8000: ILO Standards. Social responsibility standards
ISO 9001: Quality management system
ISO 14001: Environmental management system
ISO 45001: Occupational health and safety management system
ISO 50001: Energy management system
ISO 27001: Information security management system

PRODUCT CERTIFICATION

IEC 61215, IEC 61730
Ammonia Corrosion (IEC 62716)
Salt Mist Corrosion (IEC 61701)
LeTID (IEC TS 63342)
Dust & Sand (IEC 60068)

SolarPower Europe

Warranty partner
Munich RE

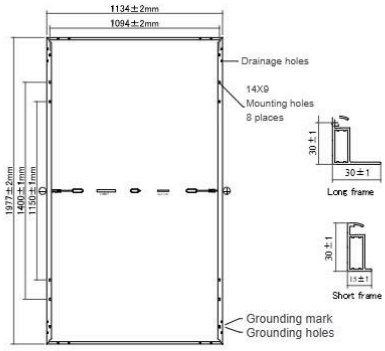
A member of Hengdian Group

MODULE DATASHEET (PG 2)

DMxxxG12RT-G54HBB

Module Specification

Cell Type	N type Mono-crystalline, 108(6×18)
Dimensions (mm)	1977×1134×30
Weight (kg)	27.1
Front Cover	2 mm heat strengthened glass, Anti-reflective coating
Rear Cover	2 mm heat strengthened glass
Junction Box	3 Diodes, IP68 according to IEC 62790
Output Cables (Including Connector)	4 mm²/Portrait: 300 mm (+) /200 mm (-) Landscape: 1200 mm (+) /1200 mm (-) Length can be customized
Connector Type	PV-ZH202B or MC4-EVO 2A (1500V)



Back side (mm)

Electrical Specifications[1]

Module Type	DM510G12RT-G54HBB		DM515G12RT-G54HBB		DM520G12RT-G54HBB		DM525G12RT-G54HBB		DM530G12RT-G54HBB	
Testing Condition	STC[2]	NMOT[3]	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum Power (Pmax/W)	510	389	515	393	520	396	525	400	530	404
Maximum Power Current (Imp/A)	14.84	12.06	14.88	12.09	14.92	12.12	14.96	12.16	15.00	12.19
Maximum Power Voltage (Vmp/V)	34.37	32.25	34.61	32.47	34.85	32.70	35.09	32.92	35.33	33.15
Short-circuit Current (Isc/A)	15.78	12.72	15.83	12.76	15.88	12.80	15.93	12.84	15.98	12.88
Open-circuit Voltage (Voc/V)	40.62	39.09	40.75	39.22	40.88	39.34	41.01	39.47	41.14	39.59
Module Efficiency STC (%)	22.7		22.9		23.2		23.4		23.6	

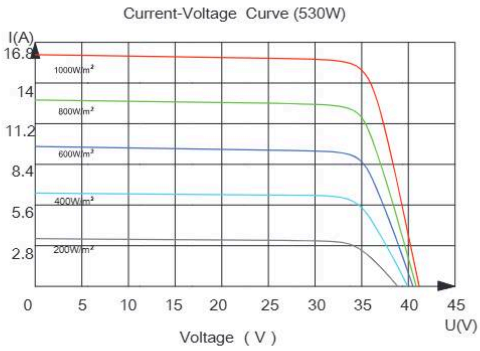
[1] Measurements according to IEC 60904-3, Measurement tolerance: Isc: ±4%, Voc: ±3%, Test uncertainty for Pmax: ±3%, Bifaciality: 80%±5%
[2] STC (Standard Test Condition): Radiation 1000 W/m², Module temperature 25°C, AM = 1.5
[3] NMOT: Radiation 800 W/m², Ambient temperature 20°C, AM = 1.5, Wind Speed 1 m/s

Operating Conditions

Operating Temperature (°C)	-40 to +85
Maximum System Voltage (V)	1500 DC(IEC)
Overcurrent Protection Rating (A)	25
Power Output Tolerance (%)	0~3
Protection Class	Class II
Max. Test Load, Push/Pull (Pa)	Front 5400 / Back 2400
Max. Design Load, Push/Pull (Pa)	Front 3600 / Back 1600

Temperature Characteristics

Nominal Module Operating Temperature (NMOT)	42±2°C
Temperature Coefficient of Pmax (%/°C)	-0.29
Temperature Coefficient of Voc (%/°C)	-0.25
Temperature Coefficient of Isc (%/°C)	+0.048



Packaging

Container	40HQ
Pallet Dimensions (mm)	1985x1140x1250
Pieces per Pallet	36
Pieces per Container	864

Hengdian Group DMEGC Magnetics Co.,Ltd.
Add: Hengdian Industrial Zone, Dongyang City Zhejiang Province, China 322118
Tel: 0086-579-8658-8826 **E-mail:** solar@dmegc.com.cn **Website:** www.dmegcsolar.com

DMEGC Renewable Energy B.V.
Add: Industrieweg 2,2641 RM Pijnacker, The Netherlands.
Tel: +31 (0) 8 58200765 **E-mail:** contact@dmegc.eu

Statement: The installation instructions and the warranty conditions must be followed. Due to technological progress, product parameters will be adjusted accordingly. When signing the contract, the latest data of the company shall prevail. All information in this data sheet corresponds to EN 50380.Changes and errors excepted. Document: EN DS-G12RT-G54HBB Plus-20250711.
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+31 (0)172 235 990 | info@vdh-solar.nl | www.vdh-solar.nl

Section 07

INVERTER DATASHEET (PG 1)

solis

Solis Three Phase Inverters

» S5-GR3P(3-20)K



360 degree

Efficient

- Max. efficiency 98.7%
- String current up to **16A**
- Wide voltage range and low startup voltage

Safe

- IP66
- AFCI protection, proactively reduces fire risk
- Automatic voltage stabilization technology in weak grid conditions

Smart

- Supports export power control
- Supports RS485, WiFi, GPRS
- Scan to register on SolisCloud, supports remote upgrade and control

Economic

- Compact design, simple installation and maintenance
- > 150% DC/AC ratio
- Supports high power modules for lower installation costs

Model:

S5-GR3P3K S5-GR3P4K S5-GR3P5K S5-GR3P6K S5-GR3P8K S5-GR3P9K S5-GR3P10K
S5-GR3P12K S5-GR3P13K S5-GR3P15K S5-GR3P17K S5-GR3P20K

Section 07

INVERTER DATASHEET (PG 2)

solis

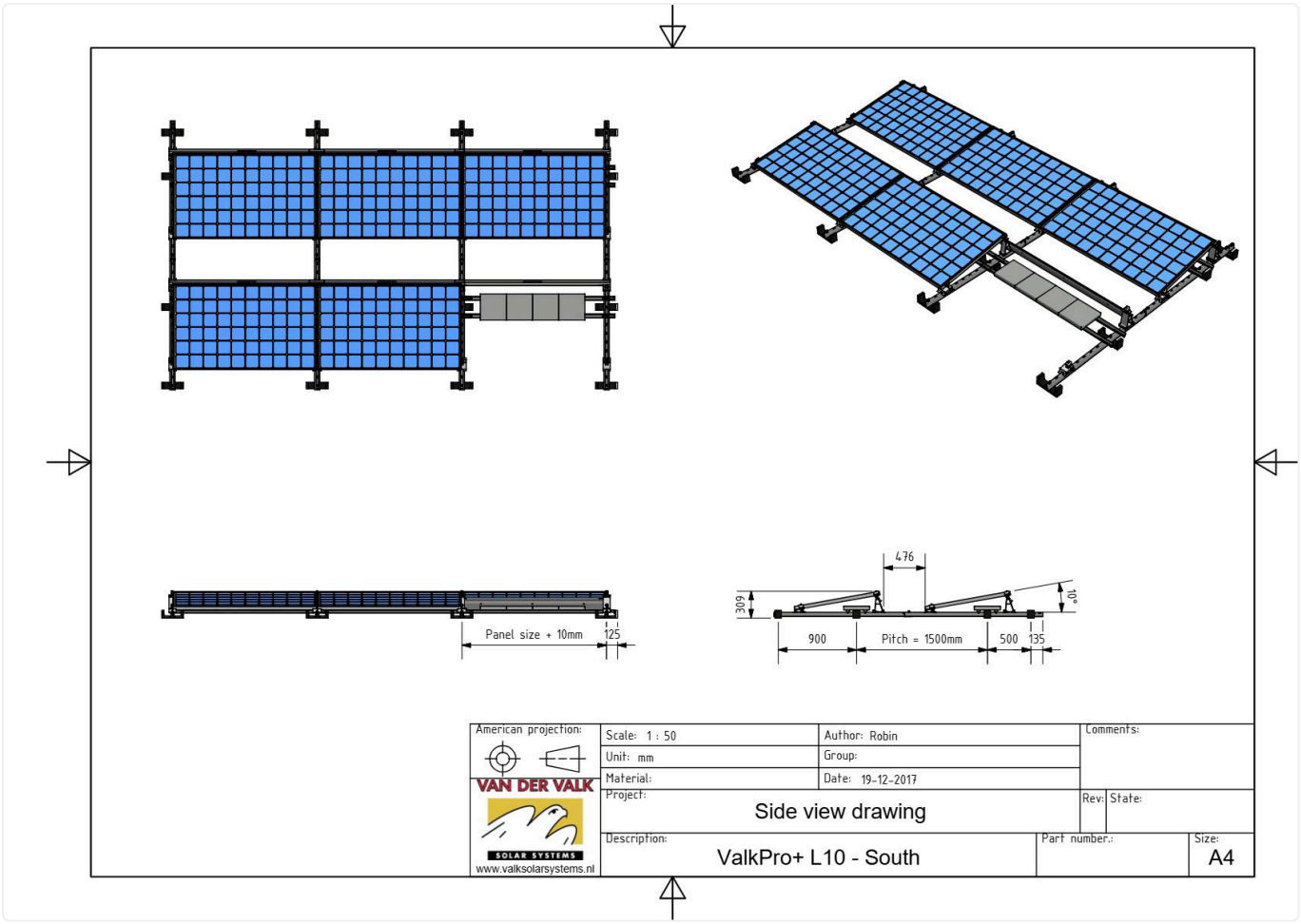
Datasheet

Model Name	S5-GR3P3K	S5-GR3P4K	S5-GR3P5K	S5-GR3P6K	S5-GR3P8K	S5-GR3P9K	S5-GR3P10K	S5-GR3P12K	S5-GR3P13K	S5-GR3P15K	S5-GR3P17K	S5-GR3P20K
Input DC												
Recommended max. PV power	4.5 kW	6 kW	7.5 kW	9 kW	12 kW	13.5 kW	15 kW	18 kW	19.5 kW	22.5 kW	25.5 kW	30 kW
Max. input voltage	1100 V											
Rated voltage	600 V											
Start-up voltage	180 V											
MPPT voltage range	160-1000 V											
Max. input current	16 A / 16 A							32 A / 32 A				
Max. short circuit current	20 A / 20 A							40 A / 40 A				
MPPT number/Max. input strings number	2/2							2/4				
Output AC												
Rated output power	3 kW	4 kW	5 kW	6 kW	8 kW	9 kW	10 kW	12 kW	13 kW	15 kW	17 kW	20 kW
Max. apparent output power	3.3 kVA	4.4 kVA	5.5 kVA	6.6 kVA	8.8 kVA	9.9 kVA	11 kVA	13.2 kVA	14.3 kVA	16.5 kVA	18.7 kVA	22 kVA
Max. output power	3.3 kW	4.4 kW	5.5 kW	6.6 kW	8.8 kW	9.9 kW	11 kW	13.2 kW	14.3 kW	16.5 kW	18.7 kW	22 kW
Rated grid voltage	3/N/PE, 220 V / 380 V, 230 V / 400 V											
Rated grid frequency	50 Hz / 60 Hz											
Rated grid output current	4.6 A / 4.3 A	6.1 A / 5.8 A	7.6 A / 7.2 A	9.1 A / 8.7 A	12.2 A / 11.5 A	13.7 A / 13.0 A	15.2 A / 14.4 A	18.2 A / 17.3 A	19.8 A / 18.8 A	22.8 A / 21.7 A	25.8 A / 24.6 A	30.4 A / 28.9 A
Max. output current	4.7 A	6.4 A	7.9 A	9.5 A	12.7 A	14.3 A	15.9 A	19.1 A	20.7 A	23.8 A	27 A	31.8 A
Power Factor	>0.99 (0.8 leading - 0.8 lagging)											
THDi	<2%											
Efficiency												
Max. efficiency	98.3%				98.5%			98.6%			98.7%	
EU efficiency	97.7%				97.9%			98.0%			98.1%	
Protection												
DC reverse-polarity protection	Yes											
Short circuit protection	Yes											
Output over current protection	Yes											
Surge protection	Yes											
Grid monitoring	Yes											
Anti-islanding protection	Yes											
Temperature protection	Yes											
Integrated AFCI (DC arc-fault circuit protection)	Yes (1)											
Integrated DC switch	Optional											
General Data												
Dimensions (W*H*D)	310*563*219 mm											
Weight	17.8 kg								18.3 kg		20 kg	
Topology	Transformerless											
Self consumption (night)	<1 W											
Operating ambient temperature range	-25 ~ +60°C											
Relative humidity	0-100%											
Ingress protection	IP66											
Cooling concept	Natural convection							Intelligent redundant fan-cooling				
Max. operation altitude	4000 m											
Grid connection standard	G98 or G99, VDE-AR-N 4105 / VDE V 0124, EN 50549-1, VDE 0126 / UTE C 15 / VFR:2019, RD 1699 / RD 244 / UNE 206006 / UNE 206007-1, CEI 0-21, C10/11, NRS 097-2-1, TOR, EIFS 2018.2, IEC 62116, IEC 61727, IEC 60068, IEC 61683, EN 50530											
Safety/EMC standard	IEC/EN 62109-1/-2, IEC/EN 61000-6-1/-2/-3/-4											
Features												
DC connection	MC4 connector											
AC connection	Quick connection plug											
Display	LCD											
Communication	RS485, Optional: Wi-Fi, GPRS											

(1) Activation required.

Section 08

MOUNTING SYSTEM DATASHEET

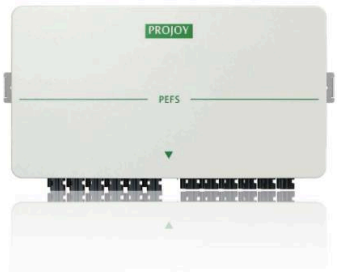


PROJOY / SANTON DATASHEET (PG 1)

PROJOY electric
Switch To Safety!

PEFS Series

(3-5 strings)-P2 Fire Fighter Switch



High Craftsmanship AND High Standards

- Max 1500V Max 50A
- Arc Fault protection (Optional)
- PID recovery (Optional)
- Flame retardant UL94-V0
- Easy Installtion
- Physical isolation
- IP65 Outdoor installation IP65
- Over temperature protection > 70 C

PROJOY electric
– Switch To Safety! –

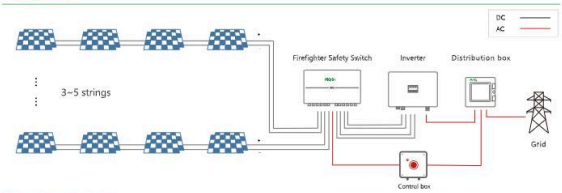
Naming

PEFS	EL	x	y	P2
Projoy Firefighter Switch	Enclosure	Rated Current	Poles	Second-generation

Models: PEFS-ELx-y. Rated current: x=16/25/32/40/55/40H/50H, y= 6/8/10

When the current is greater than 40A, please select cable glands.	Unit withcable glands, M12	Unit with QC4connectors (Other brand connectors Optional)

Diagram



Tripping ways

By temperature



By AC Power cut-off



By Manual



www.projoy-electric.com
V2.5 20220801

PROJOY electric
– Switch To Safety! –

ProJoy Electric Co., Ltd.
2nd Floor, Building 3, No. 2266, Taiyang Road, Xiangcheng District, Suzhou, China
Tel: +86 512 6878 6489 | Fax: +86 512 6878 6489
Email: sales@projoy-electric.com | www.projoy-electric.com

PROJOY / SANTON DATASHEET (PG 2)

Technical data

Technical Parameter	
Main Parameters	**PEFS-ELx-y-P2**
System voltage (Vdc)	300~1500
Max current (A)	50
Number of strings	3/4/5
Poles	6/8/10
Operating voltage	100Vac - 270Vac
Nominal voltage	230Vac
Nominal current	30mA
Operating temperature	-40°C - +70°C
Automatically switch off by temperature	+70°C
Storage temperature	-40°C - +85°C
Ingress protection level	IP65
Protection level	Class II
Certification	CE
Regulations compliance	EN 60947-1&3
Mechanical life	10000
Electrical life	>1500
PID recovery funciton	optional
Arc fault protection	optional

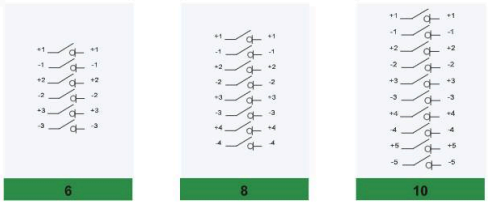
PID Recovery Module Spec (optional)		
AC Input	Static Power	<0.5W
	Operating Power	3.75W
	Max. Power	8.75W
DC Output	Rated Output Voltage To Ground	600V
	Rated Output Current	3.3mA
	Max. Short Circuit Current	6.7mA
PV Modules And Inverter Requirements	Max. System Volatage	1500V
	Module Type Required	P Crystalline Silicon Type
	Minimum Insulating Impendance	200kΩ
Other Info	Operating Temperature Range	-40°C~+70°C
	Operating Relative Humidity	0%~98%
	Max. Altitude Without Derating	4000m

PROJOY electric
– Switch To Safety! –

Technical data

Data of PEFS refer to built-in DC isolators. Data according to IEC60947-3(ed.3.2):2015, Utilization category DC-PV1.						Poles	No. of Strings	Part Number
300V	600V	800V	1000V	1200V	1500V			
16	16	16	9	6	3	6/8/10	3/4/5	PEFS-EL16-6/8/10-P2
25	25	22	11	8	4	6/8/10	3/4/5	PEFS-EL25-6/8/10-P2
32	32	26	13	10	5	6/8/10	3/4/5	PEFS-EL32-6/8/10-P2
40	40	30	20	15	13	6/8/10	3/4/5	PEFS-EL40-6/8/10-P2
55	55	45	33	33	18	6/8/10	3/4/5	PEFS-EL55-6/8/10-P2
40	40	40	40	30	20	6/8/10	3/4/5	PEFS-EL40H-6/8/10-P2
50	50	50	50	40	30	6/8/10	3/4/5	PEFS-EL50H-6/8/10-P2

Contact Configuration



Dimensions

