ALUCORE KIT

2v18/21-4.2 (25° TILT)

The AluCore Ground Mount Kit is a pre-engineered aluminium mounting solution for Ground-mounted solar PV systems. Designed for residential, agricultural, and light commercial applications, the system offers a strong, corrosion-resistant structure with optimised tilt for maximum energy yield and simplified installation.

This system is designed as a structural support frame, and in accordance with recognised structural standards:
SANS 10160: 1-7 structural loading design
Eurocode 9 (EN1999) Design of structural aluminium
Structural members sized based on distributed wind loads and panel surface area, connections are designed to transfer loads safely between

Modules → rails → purlins → rafters → foundations

The system must be installed in accordance with supplied guidelines to maintain structural performance.

AluCore Structure: Ground Screw Anchoring Method

AluCore Structure: Concrete Anchoring Method

KEY SPECIFICATIONS

PARAMETER	VALUE
Configurations	2 rows x 18-21 panels (portrait)
Total panels	36-42
Tilt angle	25°
Structural material	Aluminium (AL6063-T6) (AL6005-T5)
Fasteners	Stainless steel (SS304)
Foundation types	Concrete / ground screws
Warranty	Standard 10-year corrosion warranty

***NB:** Ground screws sold separately

TERRAIN CATEGORIES (SANS 10160-3)

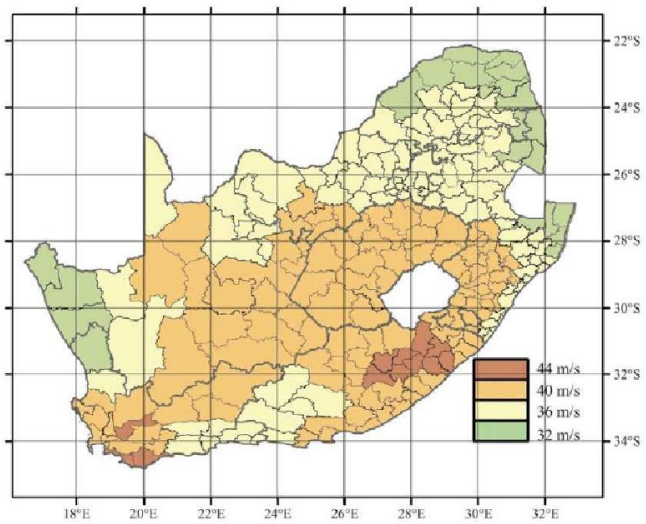
A – exposed, open terrain (no shielding)
B – semi-exposed (low vegetation, scattered obstacles)
C – suburban / light urban
D – dense urban / well-shielded

WIND & TERRAIN SUITABILITY

WIND SPEED (m/s)	A	B	C	D
32	✓	✓	✓	✓
36	✕	✓	✓	✓
40	✕	✕	✓	✓
44	✕	✕	✕	✕

***NB:** ✓ = Suitable ✕ = Not recommended

SANS 10160-3:2019
Edition 2.1



lumax ENERGY
STRUCTURES TO SUPPORT THE SOLAR REVOLUTION

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STRUCTURAL PERFORMANCE

The AluCore system is engineered to:

- Resist uplift, lateral, and downward loads caused by wind action
- Maintain structural integrity under cyclic environment loading
- Provide adequate stiffness to limit excessive deflection of modules
- Ensure secure load transfers through all connection interfaces

KEY STRUCTURAL FEATURES

- Triangulated support frame for stability
- Cross-bracing to improve rigidity
- Modular spans designed to limit bending stresses

SYSTEM CAPACITY & ELECTRICAL CONFIGURATION

Supports 36-42 panels (2 high x 18/21 wide)

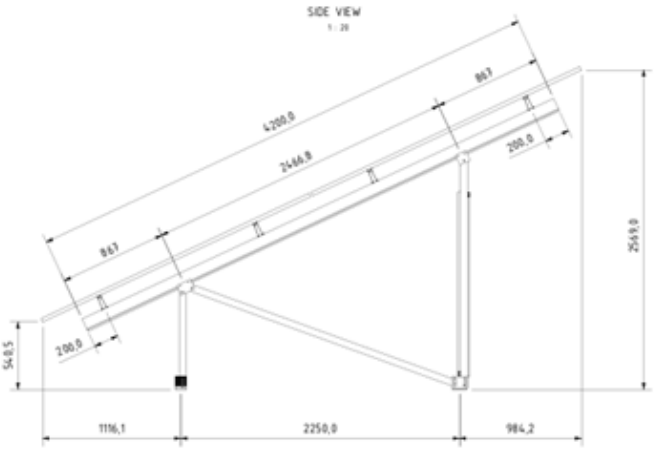
Typical configuration

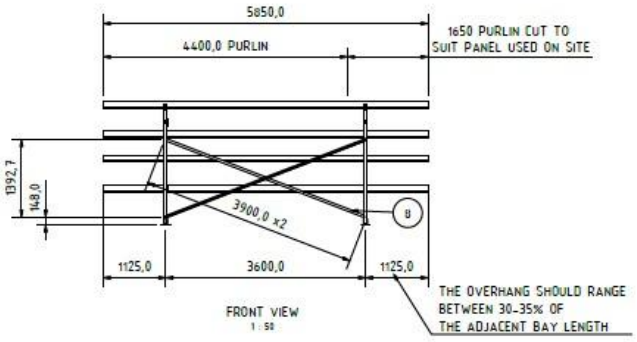
- Single string: 1800-2400 Vdc (not recommended/ theoretical only, exceeds standard inverter limits)
- Dual string: 900-1200 Vdc per string
- Triple string: 600-800 Vdc per string (recommended configuration depending on inverter MPPT inputs)
- Quadruple strings: 450-600 Vdc per string (recommended configuration depending on inverter MPPT inputs and system design)

Typical string configurations shown for reference only; actual System voltage depends on panel and inverter selection.

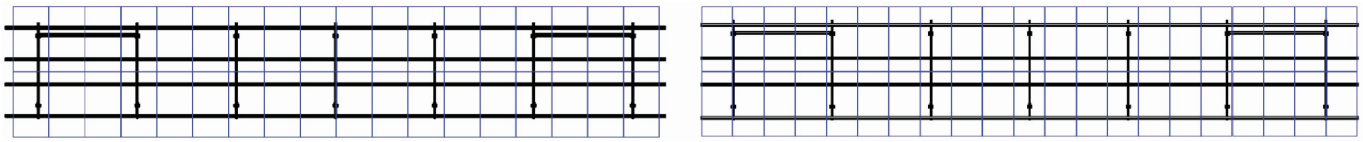
PANEL COMPATIBILITY

- Standard modules: ±2200 x 1100mm (≤600 W)
- Large format modules: ±2400 x 1300mm (≤600 W)
- Compatible with framed modules (30-40mm thickness)





AluCore Structure Drawings



System Geometry & Layout (2x18 and 2x21)

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INSTALLATION CONSIDERATIONS

- System supplied as a pre-engineered kit with defined assembly sequence
- Certain components require on-site cutting to specified lengths

Installation must follow Lumax guidelines to ensure

- Structural integrity
- Correct load distribution
- Warranty compliance

ADDITIONAL INFORMATION

ANCHORING & FOUNDATION DESIGN

The foundation system forms a critical part of the structural design.

CONCRETE FOUNDATION

- Suitable for all soil conditions
- Designed to resist uplift and overturning forces
- Can be cast-in or surface mounted

GROUND SCREWS (HELICAL PILES)

- Suitable for appropriate soil conditions
- Enables rapid installation with minimal site disruption
- Requires site-specific pull-out testing to confirm capacity

Foundation selection must be based on soil conditions and project-specific loading requirements

TECHNICAL GUIDANCE & LIMITATIONS

- Designed for ISO9223 corrosion class C3 and below

Not recommended for

- Steep slopes, coastal installations or complex topography
- Coastal areas (<50m elevation)

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AluCore Structure: Concrete Anchoring Method

PACKING INFORMATION

KIT CODE	PACKAGING	TOTAL WEIGHT (Kg)
LMK-GM-2v18/21-4.2	One box (45 x 30 x 30cm) One box (30 x 23 x 30cm & One bundle (5.2m x 0,5m x 0.5m)	207.3Kg

WHAT'S IN THE BOX

#	ITEM	QTY	ILLUSTRATION	NOTE(S)
1.1	Purlin 112 x 4400mm	8		
1.2	Purlin 112 x 3300mm	12		
2	Rafter 110 x 4200mm	7		
3	Top Fix Rail 20 x 4100mm	2		User to cut to length, used as cross brace

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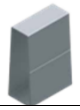
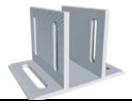
4.1	Support Bar 55 x 55 x 800mm	7		Front support
4.2	Support Bar 55 x 55 x 1850mm	7		Rear support
4.3	Support Bar 55 x 55 x 2300mm	7		Diagonal brace support
5	Internal Purlin Splice R112 – 300mm	16		Used with self-drilling screws
6.1	Purlin to Rafter Connector	56		
6.2	R80 to SB Connector (double) 120mm	7		Rear foot
6.3	R80 to SB Connector (single) 90mm	7		Front foot
7.1	Inter-clamp with single grounding pin 26-36mm for 50mm panels	80		
7.2	Dynamic (adjustable) end-clamp for 30-40mm framed panels	16		
8	Self-drilling Screw 25 x 6.3mm	128		Used with splice
9.1	Flat Washer M8 x 16 x 1.5	20		Used with cross brace
9.2	Flat Washer M12	56		Used with anchor bolts
9.3	Spring Washer M8	10		
10.1	Nut M8 Standard	10		
10.2	Nut M12 Standard	56		Anchor nut
11.1	Cap Screw M8 x 60mm	2		Used with cross brace
11.2	Hex Bolt M8 x 80mm	8		Used with cross brace
12	Threaded Rod M12 x 160m	28		Anchor rod
13	Chemical Anchor M12 x 100	28		Glass capsule resin