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**Solar Panel Guide
Specification Data Sheet**

**GruppoSTG Fabbrica Srl
VE136PVTTF L - VE236PVTTF L
165W**

Also available on the web at
EnergyPal.com/gruppostg-fabbrica-srl-solar-panels/165w



Power range:
from 150 to 165 Wp



Positive tolerance:
from 0 to +4,99 Wp



Transparency:
46%



Frameless:
without frame



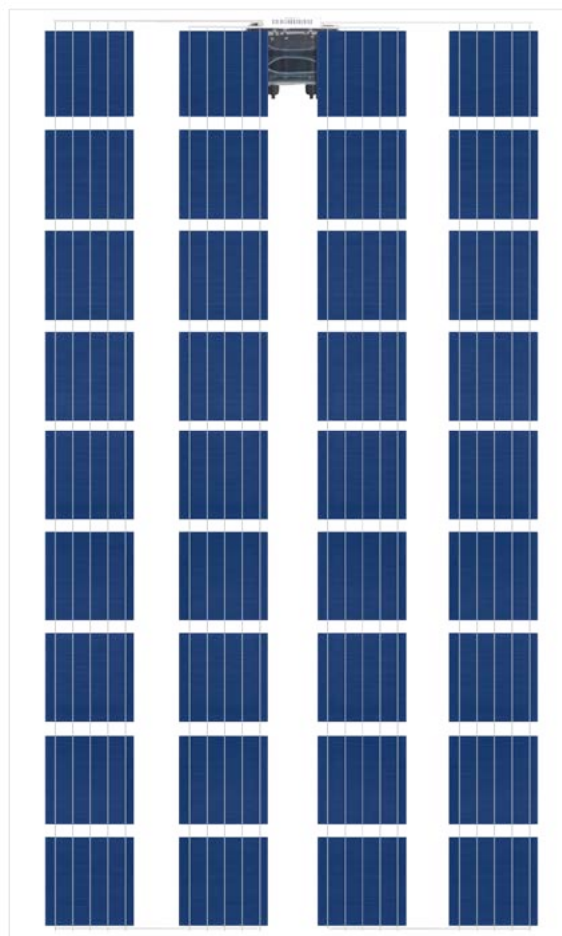
Fire resistance:
class of reaction to fire 1 (UNI 9177)



Warranty:
12 year against manufacturing defects



Cell:
5BB Polycrystalline, standard color



Measures VE136PVTTFL Transparent Frameless

• Length	1640	mm
• Width	985	mm
• Height	4	mm (on position of junction box 31 mm)
• Weight	17,5	kg
• Frameless	-	-
• Glass thickness	3,2	mm

Specifications

- Use of tempered glass anti-glare with low iron content and high quality for optimum light collection.
- NOCT = 45°C
- Temperature range from -40°C a 85°C
- Mechanical load on surface max 550 kg/m²
- Hail impact resistance Ø 25mm a 86 km/h

Measures VE236PVTTFL Transparent Frameless

• Length	1640	mm
• Width	985	mm
• Height	5	mm (on position of junction box 32 mm)
• Weight	19,5	kg
• Frameless	-	-
• Glass thickness	4,0	mm

System certifications

- Corporate Quality Management EN ISO 9001:2008
- Environmental Management EN ISO 14001:2004
- Management of Health and Safety at the Workplace BS/OHSAS 18001:2007
- Certificates issued by TUV Rheinland ID:9105084080

Product certifications

- IEC 61215:2005
- EN 61730-1/-2:2007
- Class of reaction to fire I (UNI 9177)
- Anti-corrosion saline IEC 61701
- Anti-corrosion ammonia IEC 62716
- PID Free - Classe A
- Safety class II
- Factory Inspection
- Production "made in Italy"
- EC Directives: EMC 2004/108/EC; 2006/95/EC low Voltage

Guarantees

- 12 year warranty against manufacturing defects*
- 25 year linear warranty to 82.5% of the maximum declared power*

*If used and installed according to technical and operational instructions. The Company reserves the right to make changes to product specifications. This data sheet corresponds to the requirements of Standard EN50380. Rel.2 05/2019

Behavior in standard test conditions STC*

Power class (maximum value)	P_{max}	150 Wp	155 Wp	160 Wp	165 Wp
Efficiency	η	9,29 %	9,60 %	9,91 %	10,21%
Open-circuit voltage	V_{oc}	22,58 V	22,99 V	23,41 V	23,82 V
Short-circuit current	I_{sc}	8,83 A	8,91 A	8,99 A	9,06A
Maximum power voltage	V_{mp}	18,32 V	18,68 V	19,05 V	19,44 V
Current at maximum power	I_{mp}	8,25 A	8,34 A	8,43 A	8,52 A

* Note - Under standard conditions: Irradiation 1000 W/mq - Module temperature = 25°C - Air mass AM 1,5
 Measurement tolerance solar simulator class A (- / + 2%) in accordance with IEC 60904-9

Materials used

Cells per module	36
Cell type	5BB Polycrystalline
Cell size	156,75 mm x 156,75 mm
Front side	Anti-glare tempered glass (EN 12150)
Back side	Transparent backsheet

Parameters for optimal integration into the system

Maximum system voltage class II	1000 V
Load capacity of reverse current	15 A
High snow loads (standard IEC 61215)	max 5,4 kN/m ²
Number of bypass diodes	2

Thermal characteristics

NOCT**	45 +/-2°C
TC I_{sc}	0,046 %/°C
TC U_{oc}	-0,345 %/°C
TC P_{mpp}	-0,417 %/°C

**Note - Under NOCT conditions: Irradiation 800 W/mq - Module temperature = 45°C - Air mass AM 1,5

More Info

Transparency	46%
Sorting tolerance P_{max}	0/+4,99 W
Type of protection (IP)	IP65
Connector	MC4
Cable	Solar cable 4mm ² - Length 1m

