



**Power range:**  
from 150 to 165 Wp



**Positive tolerance:**  
from 0 to +4,99 Wp



**Transparency:**  
46%



**Frameless:**  
without frame



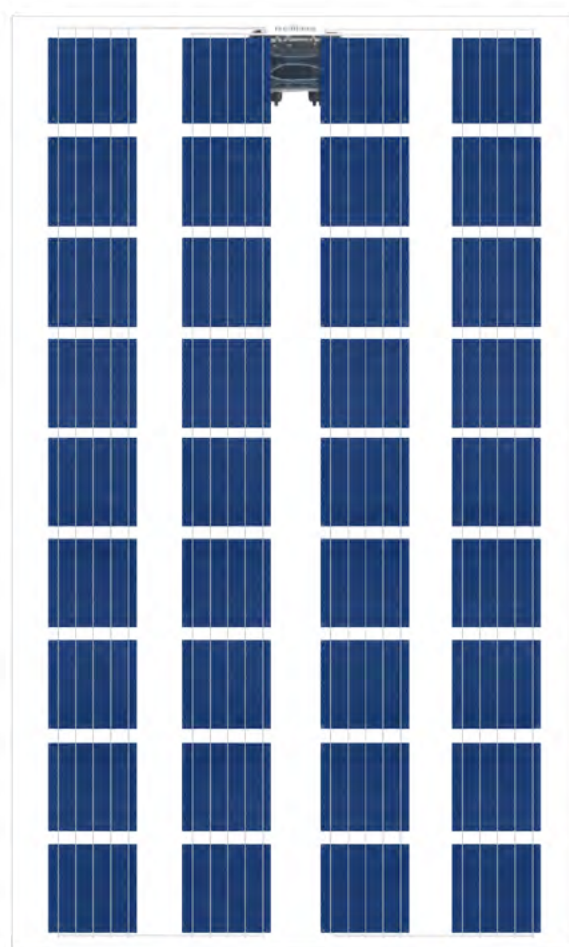
**Fire resistance:**  
class of reaction to fire 1 (UNI 9177)



**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/m<sup>2</sup>
- Hail impact resistance Ø 25mm a 86 km/h

### Measures VE236PVTTFL Transparent Frameless

|                   |      |  |
|-------------------|------|--|
| • Length          | 1643 | mm                                     |
| • Width           | 993  | 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.3 08/2020

## Behavior in standard test conditions STC\*

| Power class (maximum value) | $P_{max}$ | 150 Wp  | 155 Wp  | 160 Wp  | 165 Wp  |
|-----------------------------|-----------|---------|---------|---------|---------|
| Efficiency                  | $\eta$    | 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 <sup>2</sup> |
| 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 <sup>2</sup> - Length 1m |

